Special Issue of the "Fruit World"

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FRUIT WORLD ANNUAL

Book of
Book of
Daily Reference
for Growers of
Apples, Pears, Vine,
Citrus & Stone Fruits,
Exporters
Marketgrowers
Etc.



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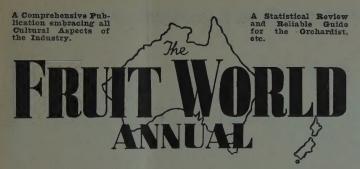
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EDITORIAL

THE MAGNITUDE of the fruit industry in Australia and its economic importance to this country are revealed in the following pages.

The facts are that Australia is blessed with a genial climate and that choice fruits of all kinds can be produced in abundance.

Growers are diligent folk, exercising skill in their work of producing commodities which are vital to the health of the nation.

Forever should be banished the statement which used to be heard that "fruit is a luxury." The position is exactly the reverse. Fruitgrowers are engaged in an enterprise on which the health of the nation depends, and it is pleasing in this connection to observe that the medical and dental fraternity, dietitians and health authorities generally are giving voice to these sentiments. Fruitgrowers deserve well of this community. Not only are they rendering faithful service to Australians in supplying them with the best of nature's foods, but wealth is being brought into this country from the export trade in dried, canned and fresh fruits.

It is gratifying to know that Federal and State Governments have recognised the needs of the industry in many ways, for which appreciation is expressed. More, however, yet remains to be done in the matter of horticultural research.

It may seem a paradox to some to suggest that research is needed in regard to crop production, while at the same time, leaders of the industry are vigilant in warning against over production.

On looking into the matter more closely, however, it is clear that there is no paradox.

Research is Needed

in the matter of more effective control of insect pests and fungus diseases; manuring, drainage, soil surveys, stocks, varieties and all phases of fruit culture, so that maximum crop of choice fruit can be produced with a minimum of expense.

To mention one instance alone—attention has repeatedly been drawn to the fact that Californian Peach growers produce treble the crops per acre as compared with Australia.

It is hoped that the needed attention will be given to this matter of research into the varied phases of fruit production, cool storage, etc. It is pleasing to know that the Commonwealth and State Governments have agreed to share the expense of sending their Senior State Supervising Officers to England to examine the outturn of Australian fruit cargoes. The information thus gained should be of great value, for the officers who are thus examining the fruit in London this season are the same who are responsible for the examination of the fruit prior to export. It is research work of a very practical nature, and the results should bring lasting benefits.

A MONG THE OUTSTANDING events of the year just closed were the conferences in London relative to the Anglo-American Trade Treaty and the enactment of legislation relative to the export and local marketing of Apples and Pears.

With regard to the Anglo-American Trade Treaty, it is noted that British preferences on dried and canned fruits remain practically as decided at the Ottawa Conference, though the hope is expressed that the preference will subsequently be changed to a straight-out duty on foreign canned fruit entering the United Kingdom instead of duty on an ad valorem basis as at present.

The duty on Apples and Pears remains at 4/6 per cwt. during the greater part of the period in which Australian and N.Z. fruit is on the British market; at other periods the duty has been reduced to 3/- per cwt. The original date for the imposition of the duty was understood to be March 15, but this has been put forward to April 15, when substantial quantities of Australian and N.Z. fruit are arriving in England. This matter has been taken up with the authorities, also the question as to the implementing of the expressed desire for mutual market stabilisation, and in particular the preventing of the possibility of the banking up of stocks of foreign Apples just prior to the opening of the Australia-N.Z. season.

The other major item was the passage through Parliament of the Apple and Pear Organisation Act and the Apple and Pear Publicity and Research Act. The former provides for the setting up of an Apple and Pear Board with statutory authority to control exports and the latter authorises the collection of a small levy per case on the Apples and Pears sold in Australia (except for processing) for publicity and research. The funds will be vested in the Apple and Pear Board; educational publicity on health lines to increase the consumption of Apples and Pears will be the main objective, as it is believed that horticultural research is still a matter for the

Government. Publicity committees have been set up in the several States, from which a co-ordinating committee will be selected to draft the programme for approval of the Board.

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Appreciation is expressed to all who are rendering good service to the industry, including the Federal Government, and in particular the Department of Trade and Commerce; the officials at Australia House and Eastern Trade Commissioners; the State Departments of Agriculture and their very capable staff of scientists and inspectors; the Council of Scientific and Industrial Research; the Nutrition Council and Nutrition Committees in the several States; the Railways Departments and others.

In the several States capable men have come forward to take Executive positions in growers and traders organisations. From these State associations delegates have been selected to act on the Australian-wide organisa-

tions. The services rendered have been invaluable and the industry is under a deep debt of gratitude to them.

In the publicity work for all branches of the fruit industry, thanks are due to the Education Departments in the several States, nutrition committees, health departments, health associations, women's organisations and others who in the interests of national health are advocating the increased use of fruit and vegetables in the daily diet, are materially assisting in the building up of a national industry.

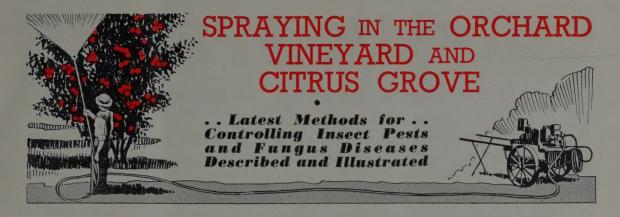
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The international situation is too complicated for any general survey here. We know that we are bound up in all that is involved in world politics and desire nothing more greatly than the opportunity for the peaceful development of this, our national heritage, and the opportunity for world trade. We trust that 1939 will see the vindication of the ideals of true democracy.

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S PRAYING is such an important part of the operations in fruit cultivation that special attention is devoted to this subject in the following pages.

However, it should here be stated that important though spraying undoubtedly is, there are many other aspects of orchard work, all of which are essential for the production of good fruit. These include aspect, soil, stocks, varieties, drainage, cultivation, pruning, irrigation, orchard sanitation, cover crops, manuring, etc.

With regard to spraying, emphasis should be laid on the thoroughness with which the work is performed. Furthermore, it is of vital importance that spraying should be correctly timed. The Departments of Agriculture are now performing good service by broadcasting the best time to spray in specific areas to deal with Black Spot, Codling Moth, etc.

Every year sees some advance in the art of spraying. The use of lure pots is now fairly general for calculating the peak flight of moths so that spraying with arsenate of lead can be given to destroy the young larvae, or with oil to act as an ovicide.

The seasons are divided thus:-

Spring.—September, October, November.

Summer—December, January, February.

Autumn—March, April, May.

Winter-June, July, August.

In Winter—Spray deciduous trees with red oil, or lime-sulphur, to check San Jose, mussel and olive scale, red spider, bryobia mite, Pear phytoptus.

For several fruit rots, spray in mid-Winter, after pruning, with Bordeaux, 6-3-40. Spray vines with red oil, 1-20, to kill vine scale.

Late Winter (and before buds open in the Spring).—Spray with red oil for scales and mites, and with Bordeaux or lime-sulphur for fungi. Lime-sulphur also destroys red spider and woolly aphis.

In Spring. — Spray deciduous trees and vines with Bordeaux or Burgundy mixture against black spot, leaf curl and other fungi. Spray with arsenate of lead for codling moth and leaf-eating insects. Many growers use for the "calyx" spray on Apples and Pears, a combination of arsenate of lead with a fungicide. As a fungicide some growers use lime-sulphur, others Bordeaux or Burgundy. In Spring, spray Peach, Nectarine, Plum trees, Roses, shrubs and garden plants with nicotine preparations to kill aphides, scales and plant bugs. Spray Apricot trees with Bordeaux 6-4-40 plus 1 lb. lime casein spreader during pink bud stage.

In Summer.—Spray citrus trees with white oils or fumigate with hydrocyanic acid gas to kill scales. Continue with arsenate of lead on deciduous trees; white Summer spraying oils will kill the codling eggs, and generally control aphis, red spider and other orchard pests. Continue with nicotine for aphides and scales. Dust with nicotine or pyrethrum insecticides.

In Autumn.—Spray deciduous trees with arsenate of lead for leaf and fruit-eating pests. Spray Apricot trees with Bordeaux 6-4-40 plus 1 lb. lime casein spreader to 100 gallons of spray, this being one of the necessary sprays to control scab or shot hole.

The use of spreaders to obtain more even distribution and better adhesion is recommended.

Always cleanse the vats and hoses immediately after using, otherwise copper sprays will injure the equipment, whilst oil emulsions may be spoilt by traces of lime, tobacco, etc.

FOR VEGETABLES.

The foregoing information is generally applicable for controlling vegetable pests.

The dusting of the plants with insecticides and fungicides has proved successful. There are several valuable proprietary dusts on the market.

COOPER SPRAYS

Are Definitely Superior

COOPER'S

ARSINETTE Specially prepared Arsenate of Lead Powder, unsurpassed for fineness of particles. Used for the control of all chewing grubs and insects.

Packed in 1\(\frac{1}{4}\) cwt., 1 cwt., 28 lb. and 4 lb. and 1 lb. units.

COOPER'S

ALBOLEUM Emulsified White Oil. Safe to use on all classes of fruit trees and shrubs at any season of the year. Used for the control of scale pests and as a general tonic. Controls Red Spider and Aphis.

Packed in 45 gall., 5 gall., 2 gall., and 1 gall containers.

COOPER'S

BORDINETTE Ready prepared Copper Fungicide. Mixes immediately with cold water and is then ready for use. For the control of all Fungous Diseases of plants for which a Copper spray is advocated. Dilution 1 lb. to 10 galls.

Packed in 56 lb., 28 lb., 4 lb., and 8 oz. containers.

COOPER'S

COLLOIDAL SULPHUR Pure sulphur in semi-paste form. The finest form of sulphur ever produced, the particle size being less than one 25,000th part of an inch. Safe to use at all times. Controls Mildews, Spots, Brown Rot of Stone Fruit and other diseases for which sulphur in any form is used.

Packed in 7 lb. and 3 lb. glass jars. Dilution 2 lb.-100 galls.

COOPER'S

DRYMAC Derris Dust A standardised non-poisonous dusting powder of proved efficiency for the destruction of insect pests attacking vines, vegetables and flowers, particularly cabbage moth caterpillars, aphis, thrips, beetles, etc.

Sold in 112 lb. bags, 56 lb. cases, 7 lb. and 2 lb. and 1 lb. cartons.

COOPER'S

ovical DE The original Tar Distillate Wash. Used all over Australia for the control of aphis and other overwintering pests. For dormant spraying only.

Packed in 45 gall., 5 gall., 2 gall, and 1 gall. containers. Dilution 1 gall. to 40 gall. water.

Also KATAKILLA: non-poisonous derris spray; NICOTINE: 40 per cent.; WEEDICIDE: weed and scrub killer; APTERITE: soil fumigant; WORMKILLER: for lawns, etc.; SOIL STERILISER, etc., etc.

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(X magnified.)

CLASSIFIED INDEX OF ORCHARD PESTS AND DISEASES.

Description of Pests as Illustrated.

Woolly Aphis.—This aphis lives in hollows and crevices, on the roots, trunks, and limbs of the Apple tree, causing very unsightly swellings, made by the pricking of their beak-like rostrums (or sucking tubes), thus absorbing the juices of the tree. They are manifested mainly by a white, downy appearance on the twigs, limbs and branches.

Aphis of Peach (Black and Green).—Black and Green Aphis infest branches and leaves, causing the latter to curl and dry up. They are very troublesome when the young shoots are beginning to grow in spring. Black aphis infest roots.

Various Aphis also attack Roses, Carnations, Pansies, and garden plants.

Apple Mussel Scale.—Attacks the fruit and branches of Apples, Pears, Plums, etc., disfigures the fruit; absorbs If unchecked, will encrust the trunk and main sap. arms.

Apricot Beetles .- Small Weevils with a tapering body, most destructive; they do great damage by boring and tunnelling into Apricot trees.

Black Spot of Apple and Pears.—These fungi attack both fruit and leaves. On the fruit they form dark green, often circular, velvety patches, and generally cause the fruit to crack. On the leaves they appear as round or oval spots.

Black Spot of Orange and Lemon.-The round sunken spots are of a dark brown color, and nestling in the centre are the minute, black, punctiform pustules, visible to the naked eye.

Methods of Control of Insect Pests and Plant

- (1) APHIS, WOOLLY (Eriosoma lanigera).— Attacks Apple and Pear trees. Introduce Aphelinus parasite into orchards. Spray forcibly with nicotine solutions, white oils in summer, and Red Oil in winter. A combination winter spray, Nicotine Sulphate, Red Oil and soap has been found effective. Use pyrethrum dusts. Grow trees having blight-proof stocks.
- (2) APHIS OF PEACH.—There are two aphids commonly attacking the Peach:-

Green Peach Aphis-Myzus persicae.

Black Peach Aphis—Anuraphis persicae-niger.

For Green Peach Aphis, use tar distillate 1 in 35 before mid-July; lime sulphur during winter; and white oil and nicotine sprays in the summer. It may be necessary to spray the trees several times in the summer. Keep ground near trees free from weeds.

For Black Peach Aphis, use nicotine sulphate or tobacco sprays in the summer. It may be necessary to spray the trees several times in the summer. Keep ground near trees free from weeds.

For the various aphids attacking Roses, Carnations, garden plants and vegetables, use tobacco sprays or dusts.

(3) APPLE MUSSEL SCALE (Lepidosaphes ulmi).—Spray in winter with Miscible Red Oils, 1

Diseases (illustrated above). in 25, or Lime Sulphur, 1 in 15. Spray in summer with White Oils or nicotine solutions.

(4) APRICOT BEETLES (Belus sp.).—Spray with Arsenate of Lead. Inject Bisulphide of Carbon into tunnels made by beetles.

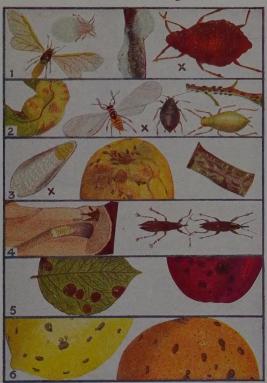
(5) BLACK SPOT OF APPLE (Venturia in-

aequalis).—Spray with Bordeaux Mixture 6-4-40 at the green tip stage, followed by Lime Sulphur 2-80 at petal fall stage, followed by Lime Sulphur 1 in 80 two weeks later.

For Pear Spot (Venturia pirina), spray with Bordeaux Mixture, 6-4-40, when the young folded leaves are just protruding from the bud, and again at a slightly later stage, when the young folded leaves and the blossom bud have separated. The blossom buds would still be green.

Some growers follow up with 4-5 ozs. of bluestone with every 80 gallon vat of lead spray, using also 1 lb. lime casein spreader, or Bordeaux mixture 3-3-50 three weeks after the fruit has formed. The above schedule should not be used for Josephine Pears.

(6) BLACK SPOT OF ORANGE and LEMON (Phoma citricarpa).—Spray with neutral Bordeaux, 3-3-50, at the first appearance of blossom. If this stage is missed, spray 6-4-100 when fruit is well set. Citrus trees, where the drainage is not efficient, are more prone to this disease than trees on well-drained plantations. Use Sulphate of Iron, & lb. to each tree.



Pest or Disease.

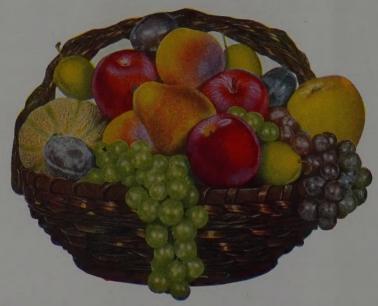
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Prepared from

ESA BLUESTONE

PREVENT AND CONTROL FRUIT DISEASE.

ORCHARDISTS! Is Your Fruit Clean and of First Grade Quality?



Spraying to Prevent Disease is Your Only Insurance

Bordeaux when prepared from high grade Bluestone and Lime — is the principal fungicide for fruit disease control. —

ESA BLUESTONE WHICH IS GUARANTEED TO BE NOT LESS THAN 99 PER CENT. PURE IS THE IDEAL BLUESTONE FOR THE JOB.

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ORCHARDISTS! LOOK FOR THE BRAND! "ESA."

CLASSIFIED INDEX OF ORCHARD PESTS AND DISEASES (Continued).

Description of Pests as Illustrated.

Black Spot of Vine.—The spores are ever-present. Under genial conditions for incubation and growth, the disease spreads rapidly, causing much loss. The disease seldom appears in dry seasons.

Brown Rot.—One of the most serious fungus diseases, the twigs, blossoms and fruit are attacked. (1) Blossom attack looks like frost injury. (2) The infected area on fruit spreads in concentric rings, which consist of millions of summer spores.

Cherry Borer.—The grub of the moth destroys Cherry, Apricot, Peach, Pear and Plum trees by boring into the branches, leaving a sawdust-like appearance on the outside of the hole.

Cherry Green Beetle.—Attacks the leaves of Cherry, Peach, Plum and Apple trees, Roses, and garden plants, etc., and, being in large swarms, will strip a tree in a very short time.

Codling Moth.—The grubs, which hatch in eight or nine days from eggs laid at calyx of young fruit and on leaves, eat into the core; then they eat a tunnel to the outside of the fruit and lower themselves to the ground, and recommence the life-cycle. Several broods appear each season.

Cottony Cushion Scale.—A cushion-shaped scale insect, with a whitish-yellow, cottony down; attacks the leaves and stems.

Curculio of Vine.—A small boring weevil, reddishbrown, with light markings; very destructive. Will remain for twelve months or more in the wood.



Pest or Disease. (X magnified.)

Methods of Control of Insect Pests and Plant Diseases (illustrated above).

- (7) BLACK SPOT OF THE VINE [Anthracnose] (Manginia ampelina).—Swab with Acid Iron Solution in early spring before vines show movement. Spray with Bordeaux or Burgundy Mixture (alkaline) when buds are bursting. Follow with Bordeaux or Burgundy neutral, giving applications according to weather conditions.
- (8) BROWN ROT (Sclerotinia fructicola).—Attacks Peach, Plum, and other stone fruit. Destroy mummified fruit. Spray Peaches, Plums, with Bordeaux 6-4-40 at bud movement; follow with Dry Mix Lime Sulphur, 25 lbs. to 100 gallons, at petal fall, when the fruit is half grown and five weeks before picking; Apricots, Bordeaux, 6-4-40 early pink but and late pink bud.
- (9) CHERRY BORER (Maroga unipunctata).—Clear away the sawdust-like matter, inject Bisulphide of Carbon into tunnel; when using carbon, close mouth of tunnel immediately to keep fumes from escaping. Caterpillars can be destroyed by probing the tunnel.
- (10) CHERRY GREEN BEETLE (Diphucephala colaspidoides).—If no fruit on the tree, spray well with Arsenate of Lead when beetle appears. When fruit is ripening, spray with Hellebore powder, 1 oz. in 2 gallons of warm

- water. This should be used perfectly fresh, as it is liable to deteriorate with age or exposure.
- (11) CODLING MOTH (Cydia pomonella).—Attacks Apple, Pear, Apricot, Quince, Loquat, Walnut, etc. Spray with Arsenate of Lead, first after petals fall and before calyx cup closes, and at intervals of 21-30 days until within three weeks of gathering fruit. Fungicides may be used with calyx spray. Excellent results have been secured by spraying with White Oils after first Arsenate of Lead spray. Destroy fallen infected fruit. If bandaging trees, examine and destroy larvae, at least every 10 days. Use chemical bandages.
- (12 COTTONY-CUSHION SCALE (Icerya purchasi).—Attacks Orange, Lemon and other citrus trees, shrubs, hedge plants, etc., very severe on Pittosporum hedges. Spray with White Cil when the trees are making a decided growth about November. This is the time of the release of the young scale in most districts.
- (13) CURCULIO OF VINE (Orthorrhinus Kluggii).—Inject Bisulphide of Carbon into tunnel and close mouth. Probe with wire. Deterrent.—Spray with Lime-Sulphur in winter.

"SPREGAN" LIQUID SULPHUR

For efficacious treatment of BLACK SPOT, DOWNY MILDEW, OIDIUM, BROWN ROT, and all Fungus Diseases for which Sulphur in any form may be used as a control.

SAFE - - - Because it prevents Leaf Scorch.

SPREGAN Pure Colloidal Sulphur is among the safest of the chemicals, which are applied to the plant surface, and it may be safely employed in all instances where other types of sulphur would be used.

CERTAIN - Because it gives definite control of Fungus Diseases.

When SPREGAN Colloidal Sulphur comes in contact with the mycelium of the Fungus the latter is killed; spores of fungi are also prevented from germinating on the leaves that have been properly sprayed with SPREGAN.

ECONOMICAL Because it ensures maximum results at less cost than other forms of Sulphurs.

It is very important, when using SPREGAN Colloidal Sulphur, that the spray should be applied in a fine misty form so that the leaves may be thoroughly covered, but not excessively wetted.

Use 2-lb, of "SPREGAN" to 100 gallons of water.

Full Instructions for Use with Order.

Manufacturers: COLLOIDAL SULPHUR PTY. LTD.

Wholesale and Retail - - - 446 Swanston St., Carlton, N.3, Vic.

Methods of Control of Insect Pests, as illustrated on opposite page.

- (14) DOWNY MILDEW OF THE VINE (Plasmopara viticola).—Spray with alkaline Copper Soda when vine shoots have grown 8 to 10 leaves. Subsequent sprayings about every seven days if weather conducive to fungus development. The summer treatment for Black Spot and Downy Mildew is identical.
- (15) ELEPHANT BEETLE OF THE ORANGE AND LEMON (Orthorrhinus cylindrostris).—No satisfactory method is known for the control of this pest.
- (16) EMPEROR GUM MOTH (Antherea eucalypti).—Spray when observed with Arsenate of Lead.
- (17) FRUIT FLY [Mediterranean] (Ceratitis capitata). Attacks Peach, Orange, Banana, Quince, Apple, Tomato, Grape, etc. Kerosene in shallow vessels attracts the fly.

- Destroy all infected fruit. Destroy weeds, work ground well under trees; poultry and insectivorous birds destroy chrysalids. Use a spraying solution—1 gallon of fruit juice (boil refuse fruit for about one hour), 1 lb. Arsenate of Lead, 25 gallons of water. Spray on windward side of tree.
- A Good Lure.—One tablespoonful Scrubbs' ammonia, one teaspoonful essence of vanilla, 1½ pints water. A dessertspoonful of black treacle may be added, but is not essential. "Clensel" and other lures have been used with good results.
- (18) HARLEQUIN FRUIT BUG (Dindymus versicolor).—Spray with Nicotine Solutions, Benzole Emulsion, White Oil or Clensel (1 in 25), whenever observed. Keep orchards free of marsh mallows.
- (19) HOLY OR CROSS BUG (Mictis profana).—When observed, spray with Benzole Emulsion, Nicotine Extracts, or Pine Spray. Shake trees over piece of blanket, and destroy all bugs that fall. Spray with Benzol Emulsion.

CLASSIFIED INDEX OF ORCHARD PESTS AND DISEASES (Continued).

Description of Pests as Illustrated.

Downy Mildew of Vine.—This serious disease over-winters in the dead leaves infected during the preceding summer. Infection in the spring takes place through spores being splashed up by falling rain. These over-wintering spores (or oospores) retain vitality for over 12 months.

Elephant Beetle of Orange and Lemon.—A large brownish weevil with a long snout. This has become a serious pest to citrus trees. It bores into the trunks of the trees, causing them to die. It is also a pest of Elm and other street trees.

Emperor Gum Moth.—One of the largest Victorian moths. Grey in color with an eye-like spot on each wing, the larvae feed on Apple and Pear trees, also Eucalyptus and Pepper trees. Very destructive to Roses.

Fruit Fly.—The female punctures the fruit with its ovipositor, and deposits the eggs. Fruit is punctured in all stages, from green to ripe. The eggs hatch in two to five days in summer, and 10 to 15 in winter. In walking the wings are drooped. In summer the fly may complete its cycle from eggs to fly in 20 days.

Harlequin Fruit Bug.—These bugs, by making holes in the rind of the Apple with their rostrums (or sucking tubes), draw out the juice, causing the fruit to spot. They are also very destructive to garden plants, especially Dahlias, Tomatoes, etc.

Holy or Cross Bug.—This plant bug is a native insect and is very destructive to all kinds of Wattles (Acacias) and citrus trees. Like all plant bugs, this species sucks the sap with its rostrum or beak, causing the trees (twigs) to turn black and die down.





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Methods of Control of Insect Pests, as illustrated on opposite page.

- (20) LEAF CURL AND DIEBACK OF PEACH. -By spraying in the late dormant period, or when the earliest buds are showing the slightest trace of pink, Leaf Curl can be prevented. Use Bordeaux Mixture (6-4-40). Finish spraying by the "early pink" stage.
- (21) LEMON LEAF AND PEEL SCALE (Mytilapsis citricola).—Thin out all dead or diseased wood. Spray with White Oil, 1-40, when trees are making decided growth. Make solution soapy by adding 4 ozs, of a good hard soap to each 40 gallons. Fumigate with Hydrocyanic Acid Gas.
- (22) LIGHT BROWN APPLE MOTH (Tortrix postvittana). — This pest is very common in home gardens, attacking Roses, Dahlias, Tomatoes, etc. The caterpillar is very lively, and quickly escapes if disturbed. Spray with Arsenate of Lead, same as for Codling Moth, No. 11.
- (23) "LOOPERS" OR LOOPER CATERPIL-LARS (Phrissogonus sp.).—These attack fruit trees, particularly Apples, Pears and Cherries; and garden plants in the spring. Spray with Arsenate of Lead.
- (24) OIDIUM [Powdery Mildew of the Vine] (Oidium Tuckerii).—Dust the vines with Flowers of Sulphur; first application when new shoots are six inches long; also dust with Sulphur just before blooming and after the fruit has formed. Keep vineyard clear of weeds.
- (25) OLEANDER OR ROUND WHITE SCALE (Aspidiotus hederae).—Attack Orange and Lemon trees, also Oleanders and garden shrubs, palms, ferns, etc. Spray well with White Oil or Nicotine solution when young are hatching (in sum-Starch spray is also recommended. On Palms, Dracaenas, Ferns, etc., use the Starch spray.
- (26) OLIVE OR BLACK SCALE (Saissetia oleae).—Attacks citrus, Apple, Apricot, vine, Olive, Pear, and Plum trees, also garden shrubs. Spray between November and March with White Oils. When young scale are moving is the favored time for their destruction.
- (27) ORANGE BUTTERFLY (Papilio anactus).-Spray with Arsenate of Lead.

CLASSIFIED INDEX OF ORCHARD PESTS AND DISEASES (Continued).

Description of Pests as Illustrated.

Leaf Curl and Dieback of Peach.-When affected with Leaf Curl (Exoascus deformans), the first-formed leaves become thickened, puckered and discolored, and soon fall away. The fungus seems to winter in the buds.

Lemon Leaf and Peel Scale.—A small, dark-colored, mussel-shaped scale; the insect attacks leaves, bark and fruit of Lemon, Orange, Citron, Grapefruit, etc.

Light Brown Apple Moth.—These insects often attack late Apples, such as Yates, as late as March. Very destructive to Roses and garden plants.

Looper Caterpillar.-The caterpillar loops its body up when walking. Some caterpillars resemble dead twigs. They are native insects and are becoming a serious pest in many parts of Victoria.

Oidium (Powdery Mildew of Vine) .- This fungus appears during the growing season under sultry conditions, such as during a damp spring or after thunderstorms in summer. Dense undergrowth of weeds also tends to create conditions favorable for Oidium development.

Oleander or Round White Scale.—A small, light, grey-ish-brown, sometimes whitish scale, which attacks the leaves and stem, and is a most difficult insect to destroy when trees are badly infested with it.

Olive or Black Scale.—These destructive scales cause sooty fungus to develop on the leaves, making trees sickly. The scales are light brown when young with an H-like marking on back of scale.

Orange Butterfly.—In the warmer parts of Victoria these insects usually appear early in November. The yellow and black spiny caterpillars will attack Grapefruit if Orange or Lemon trees are not available; they attack the leaves, flowers and fruits of citrus.



BUZACOTT QUALITY SPRAYS SPRAY MATERIALS. White Oil Emulsion for Citrus Red Oil for Aphis Lime Sulphur Solution for General Spraying 40% Nicotine Sulphate Contact Insecticide Sulphur Smoke Insecticide & Fungicide Arsenate of Lead for Codin & Chewers BUZACOTT QUALITY SPRAYS "Lunevale" Lead Arsenate (POWDER & COLLOIDAL) "Root" Dusting Machines, "Edgell" Spray Pistols and Cut Offs and "Roseberry" Spray Nozzles. BUZACOTT White Oil Emulsion for Citrus (POWDER & COLLOIDAL) "Root" Dusting Machines, "Edgell" Spray Pistols and Cut Offs and "Roseberry" Spray Nozzles. BUZACOTT BUZACOTT BUZACOTT BUZACOTT BUZACOTT BUZACOTT BUZACOTT BUZACOTT Spray Nozzles.



The Only Spray to Combat Citrus Pests NEPTUNE WHITE SPRAYING OIL



That our Chemists' research in this direction has been successful is evidenced by the volume of letters received from leading growers throughout Australia—high in their praise of NEPTUNE WHITE SPRAYING OIL—a spray which has proved a definite check to Aphis, Red Spider, Mealy Bug, White Louse, San Jose, and all other scale pests.

Trees sprayed with NEPTUNE WHITE SPRAYING OIL will remain free from orchard pests for a far greater period than that when other sprays are used.

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Neptune Oil Company Pty. Ltd.

(All States)

Methods of Control of Insect Pests, as illustrated on opposite page.

- (28) ORANGE MOTH (Conogethes punctiferalis).—Spray with Arsenate of Lead when observed.
- (29) PAINTED APPLE MOTH (Teia anartoides).—Attacks fruit trees, also garden plants and shrubs. Spray with Arsenate of Lead, same as for Codling Moth (see No. 11).
- (30) PEAR PHYTOPTUS OR PEAR-LEAF BLISTER MITE (Phytoptus pyri).—Spray in spring, when buds commence to swell, Red Oil, 1-25, or Lime-Sulphur: the latter assists in checking Black Spot.
- (31) PHYLLOXERA (Phylloxera vastatrix).
 —Plant Phylloxera resistant vines.
- (32) POTATO BLIGHT [Irish] (Phytophthora infestans). Spray with Bordeaux Mixture, 8-10-40. Commence spraying when the plants are from 4in. to 6in. high, and continue to spray every 10 days or two weeks, making in all five or seven sprayings. Use at least 80 lbs. pressure

to the square inch, and the three-nozzle arrangement, so that the spray will be thrown each side as well as on top. For Potatoes, use clean seed dipped in Formalin.

- (33) POWDERY MILDEW (Podosphaeria leucotricha).—In winter, prune off and burn infected shoots. Spray with Lime-Sulphur, 1-30, between open cluster and pink stage; Precipitated Sulphur, 10-100, at petal fall, and again (with the lastnamed spray) early in January. If disease is troublesome, middle of February.
- (34) PEACH RUST (Puccinia pruni).—Spray Bordeaux, 6-4-40, at the pink bud stage and follow with Dry Mix Lime Sulphur as for Brown Rot.

DUSTING.

The method of dusting trees with insecticides and fungicides instead of, and in addition to, spraying, has met with favor. Points claimed in favor of dusting are its efficacy, ease of application, and consequent saving of labor; the dual application of powdered insecticides and fungicides in one operation.

In vegetable and flower culture dusting is quite an accepted practice.

CLASSIFIED INDEX OF ORCHARD PESTS AND DISEASES (Continued).

Description of Pests as Illustrated.

Orange Moth.—The larvae of this moth feed on the leaves and young shoets, and are very destructive. The caterpillars of this moth destroy young flowers, buds and young shoots or Orange and Lemon, as well as the foliage.

Painted Apple Moth.—The caterpillars are covered with dark grey tufts of hairs on back near tail. They do great damage by eating the epidermis or surface of the leaves, also young shoots. These moths often appear when the flowers of Apples, Pears, Quinces, etc., are commencing to show. It may therefore be necessary to spray early.

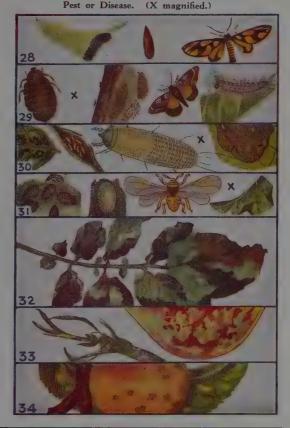
Pear Phytoptus or Pear Leaf Blister Mite. - These mites, by sucking away the juice of the leaves, cause them to turn brown and nearly black. Also attacks fruit.

Phylloxera.—Attacks leaves and roots, growth becomes stunted, and leaves turn yellow.

Potato Blight (Irish).—Attacks Potatoes, Tomatoes, etc. The first indication seen on the leaf is a slight reduction in the intensity of the coloring matter, followed by the appearance of the brownish blotches at the edge of the leaf. In humid weather they spread with immense rapidity. The disease travels down the haulms, and the plant may within a few hours become a blackish mass, emitting an evil odor. Wet seasons favor the disease.

Powdery Mildew. - A serious disease, which attacks leaves, shoots, blossom-buds and fruits of Apples and Pears. Leaves and buds become covered with glistening white masses; fruit is disfigured and small.

Prune Rust.—Attacks Plum trees. Golden yellow pustules on young wood form cracks; sometimes twigs die. Hard scabs form on fruit—useless for canning. injury means poor crop next season.



— PATERSON'S ——— CONCENTRATED CLENSEL

The Perfect Insecticide and Fungicide Sudden Death to Insect Pests

This General Purpose Orchard Spray is Now Manufactured in Australia

Orchardists:

"CLENSEL" is non-poisonous and effective, easy to handle, economical and absolutely

harmless to trees and foliage.
"CLENSEL" can be used in every season of the year on Apples, Pears, Vine Fruits, Citrus and other fruits.

Invaluable for pests which are vulnerable to contact insecticides or for use in conjunction with sprays that are applied for chewing insects and fungus diseases.

Market Gardeners, Nurserymen and Horticulturists:

"CLENSEL" will be found effective in the control of Cabbage Aphids, Red Spider, Rutherglen Bug, Pea Mite, Cabbage Moth, Onion Thrips, Bean Aphids, Jassids, Leaf Hoppers, Canary Flies and Harlequin Bug.

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SHELL REDSPRAY or SHELL **PALESPRAY**

for Dormant Season

Shell Redspray or Palespray rid trees of Red Mites, Red Spiders and other over-wintering pests, emulsify readily, break immediately on touching the tree, give maximum coverage with least waste by

SHELLICIDE "D" for Semi-Dormant Stage

Absolutely safe and remarkably efficient . . . Shellicide "D," containing a special emulsifier, can be mixed with hard or soft water, Bordeaux Mixture, Nicotine Sulphate or Lime Sulphur Solution.

SHELL WHITESPRAY for Summer Spraying

Possessing unrivalled ovicidal properties, Shell Whitespray is invaluable for controlling egg-laying insects—Codlin Moth, Aphis, Spider, etc. Emulsifies readily with hard or soft water, breaks rapidly on the tree and gives complete coverage.

THE SHELL COMPANY OF AUSTRALIA LIMITED (Incorporated in Great Britain) 50.38/51

CLASSIFIED INDEX OF ORCHARD PESTS AND DISEASES (Continued).

Description of Pests as Illustrated.

Red Mites, Bryobia, Etc.—The young mites are red, becoming brownish when fully grown. This species is larger than the common so-called "Red Spider." Eggs red, globular, these are often deposited on young fruit spurs and garden foliage.

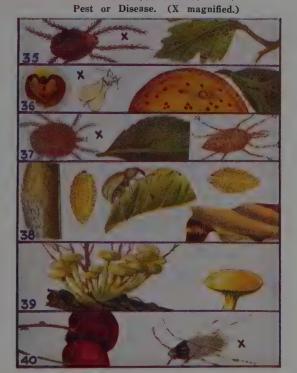
Red Scale of Orange.—A small reddish brown scale insect; attacks fruit, leaves and branches, also Roses and garden shrubs; spreads very quickly.

Red Spider.—The sap is sucked by numbers of these insects from the leaves, causing them to turn yellow. It is difficult for the amateur to locate the pest until a certain amount of damage is done.

Root Borer.—The grub attacks trees by tunnelling along the roots, and the beetle by eating the leaves. The beetle climbs the tree, fastens the leaves together with a gluey substance, and then lays her eggs. When hatched the young grubs drop to the ground and feed on the roots. The pest usually appears on the leaves for feeding in the spring.

Root Rot (Armillaria Mellea).—A destructive root fungus, which attacks all fruit trees and many garden plants.

Rutherglen Bug.—These plant bugs insert their beaks or rostrums into the fruit and extract the juice, causing the fruit to wither, become dry, and perfectly useless; they also attack flowers and vegetables, sucking the sap and causing the plants to wither. Usually appear in the summer.



Methods of Control of Insect Pests, as illustrated above.

- (35) RED MITES, BRYOBIA, Etc. (Bryobia pratensis).—They attack fruit trees, also garden plants, flowers, vegetables, etc. Spray with Lime-Sulphur or Red Oil, 1-20, when buds commence to swell. If mites are present on leaves in summer, spray with White Oils or Nicotine Solutions.
- (36) RED SCALE OF ORANGE (Aonidiella auranti).—Spray same as for Lemon Leaf and Peel Scale. When young are hatching in summer Tobacco Sprays could be used. Fumigate.
- (37) RED SPIDER (Tetranychus telarius).—Same as for Red Mites. (See No. 35.) For Red Spider on beans spray as above or dust with finely powdered sulphur.
- (38) ROOT BORER (Leptops squalidus).—Attacks Apples, Pears, vines, etc. Place a 3½in. zinc band round tree trunk 18in. from ground. Destroy all beetles observed. Keep orchards clean in the spring, as the insects lay their eggs on weeds, leaves, or suckers. Spray with Arsenate of Lead. Hymenopterous (wasp) parasites are valuable. Jar the trees over a blanket; gather and destroy the beetles.

- (39) ROOT ROT (Armillaria mellea).—Remove and destroy affected trees in order to prevent the disease spreading and dress the soil with Sulphate of Iron and Quicklime before replanting.
- (40) RUTHERGLEN BUG (Nysius vinitor).—Spray with Benzole Emulsion, Nicotine Solutions, when the bugs appear in young state. Apply Pyrethrum or Nicotine Dust. Keep down weeds. Smudge fires will drive them away from orchards.

Mealy Bug (Pseudococcus longispinus).—Small destructive insects, light yellow to grey, covered with powdery substance. Spray with tobacco preparations, or benzole emulsion.

Pear Root Aphis (Eriosoma pyricola).—Closely allied to woolly aphis; the former works entirely underground. Scatter paradichlorobenzine (P.D.B.) on surface of soil and dig in, or place in hole 6 in. deep excavated around tree. Use 3 to 10 oz. P.D.B., according to size of tree. Dip young trees before planting in tobacco water or red oil solution.

The Dicky Rice Weevil attacks citrus trees. Spray with arsenate of lead, 1-20, as soon as observed (generally early in November).



Buzacott

Spray Materials & Dusts

The name of "Buzacott" on your spray materials or dust is a guarantee of highest quality.

SPRAY MATERIALS.

White Oil (Emulsion)	for Citrus
Red Oil	for Dormant Spraying
Tar Distillate	for Aphis
"Supa Bordo" (Bordeaux).	
Lime Sulphur Solution	for General Spraying
Colloidal Sulphur	for Summer Spraying
40% Nicotine Sulphate	Contact Insecticide
Sulphur Smoke	Insecticide & Fungicide
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DRY DUSTS.

No. 4-Nicotine Dust for Sucking Insects.

No. 9—Combined Insect Dust for Chewing and Sucking Insects.

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No. 17-Chewing Insect Dust.

No. 18-Chewing Insect Dust (double strength).

No. 21-Blight, Fungus and Insect Dust.

No. 45—Quick acting Combined Sulphur and Nicotine Dust for Sucking Insects.

No. 50—All-in-One Dust, a general purpose Insecticide and Fungicide.

No. 51—"Supaderris" (Derris Dust), non-poisonous, for Sucking and Chewing Insects.

Buzacott - Wolseley

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These Important Features make the "Buzacott" W 454 the "Best Buy"

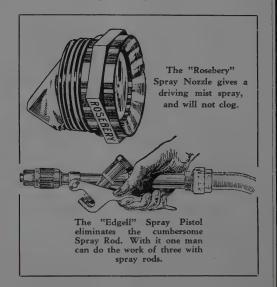
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Orchard Power Sprayers

- ◆ ENGINE—4 h.p. "Buzacott" Vertical Hopper Cooled.
- ◆ AGITATOR—Double propeller rotary type—drive chain enclosed in dust proof cover.
- ♦ CAPACITY—Vat holds 100 gals, and plant is capable of operating 6 "Rosebery" power nozzles at 350 lbs. pressure or 2 "Edgell" Spray Pistols at 350 lbs. pressure.
- ♦ CONSTRUCTION—Simple but solid and reliable. Vat of specially treated timber—all steel welded frame—robust axle and axle supports—sheet metal side shields—heavy roller chain drive with sheet metal housing.

All these and many other features make the W454 supreme in the field of Orchard Power Sprayers.

Write for the booklet "Still Another Step Forward" giving details of this and other orchard spraying outfits and it will be sent post free by return.



CLASSIFIED INDEX OF ORCHARD PESTS AND DISEASES (Continued). Pest or Disease. (X magnified.)

Description of Pests as Illustrated.

San Jose Scale.—Attacks fruit trees—Pear, Apple, Cherry, Plum, Apricot, etc., also Roses, shrubs and hedge plants. A small scale insect of light orange color; attacks trunk, limbs, foliage and fruit. Is very destructive. When Apples and Pears (fruit) are attacked, light red rings appear on the fruit around the scales.

Scab of Orange and Lemon.—Lemon Scurf, dingy white scurfy patches. Grey scab of Orange, the patches are flat, almost round, and break up into minute flakes. Greyish-brown scab of the Lemon occurs on both ripe and green Lemons. False Melanose is another form of scab.

Shot Hole.—Attacks blossom, leaves, twigs and sometimes fruit of Apricot, Cherry, Plum, etc. Blossom infection looks like frost injury. Leaf infection occurs very early, often reducing leaves to skeletons. Gum often exudes from ruptured bark. Scabbiness appears on Apricot fruit.

Slug of Pear and Cherry.—The larvae attack the leaves, doing serious mischief by devouring the skin of the upper side of the leaf. The underside is left untouched, and turns to a deep brown color. They attack the tree mainly in late spring, when the foliage is young.

Strawberry Beetle. - In November and December these insects do most damage; the beetle attacks the leaves and flowers, and the larvae bores into the plant.

Thrips.—One of the worst insect pests. All kinds of fruit, flowers and vegetables, especially Onions, are at-

Tomato Moth.—The eggs of this moth are deposited on leaves and stem. The young larvae crawl up the stem and eat their way at once into the flesh, which is destroyed. There is scarcely any limit to the number of plants this pest will attack, cereals, maize, vines, garden plants, etc.

Methods of Control of Insect Pests and Plant Diseases (illustrated above).

- (41) SAN JOSE SCALE (Aspidiotus perniciosus).—Burn all prunings promptly. Spray in late winter with Red Oil, 1-20 or Lime-Sulphur, 1-10. In summer, when scales are moving, spray with White Oils or Nicotine.
- (42) SCAB OF ORANGE AND LEMON.—As this disease attacks new growth, spray with Bordeaux (3-3-50), to which has been added 1 per cent. of Red Oil, before the new growth begins.
- (43) SHOT HOLE (Coryneum Beijerinckii).— Spray Bordeaux, 6-4-40, before leaves fall in autumn; 6-4-40 at "pink" stage. Use lime casein spreader with the Bordeaux mixture.
- (44) SLUG OF PEAR AND CHERRY (Caliroa limacina).—Cherry, Peach, Quince, Plum and other trees are attacked. Spray with Arsenate of Lead. The first spray for Codlin usually kills the Pear Slug. Spray unbearing trees or Hawthorn hedges if necessary. Dust with lime, powdered Lead Arsenate, Sulphur, ashes, or sand.
- (45) STRAWBERRY BEETLE (Rhinaria perdix).—Spray with Arsenate of Lead before fruit is ripening. As a deterrent, spray with Benzole Emulsion.



- (46) THRIPS.—When not in plague numbers, thrips do not seriously affect fruit crops. Scientific investigations prove that plague infestations as well as freedom from the pest, can be forecast from the numbers of insects present in the autumn and early spring. Pyrethrum and derris dusts kill thrips and act as repellants for two days with each application.
- (47) TOMATO MOTH (Heliothis armigera). Use poisoned baits, bran and arsenic, also Arsenate of Calcium. Spray with Arsenate of Lead or dust with powdered Arsenate of Lead. Keep soil around plants well forked.

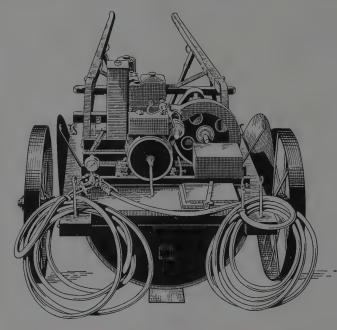
FUMIGATION.

Fumigation with Hydrocyanic Acid Gas kills red scale of citrus trees and various other scales and pests. In Victoria fumigation is compulsory. Tents are placed over trees, calcium cyanide dust, 1 oz. per 100 cub. feet, is forced in by means of a hose and blower. On being released to the air hydrocyanic acid gas is formed. This has largely superseded the "pot" method of mixing cyanide, sulphuric acid and water.

Fumigation is done (on still nights) from late December to early June; the temperature should not be below 50 deg., and humidity should not

exceed 80 degrees.

The BAVE-U Power Sprayer



- as illustrated, Fitted with U-Vat (100 gallons), Trailer Type Springs, Axle slung underneath and not through vat, Mudguards, ample clearance.
- Also supplied with standard Transport Single acting, duplex and triplex models.
- Prices of Stationary Plants on application.

Built for a Lifetime of Service

ENGINES (a) 4.H.P. 2 stroke, 450 r.p.m. crankshaft fitted with roller bearings, crankcase totally enclosed, only 3 internal moving parts.

(b) $2\frac{1}{2}$ b.h.p. 4 Cycle, 800 r.p.m. crankcase totally enclosed. Positive Lubrication system.

No Grease Cups used on these Engines.

PUMP: Totally enclosed and runs in an oil bath. Oil fed to moving parts by Oil Pump. Pump Shaft mounted on Ball Races. Stainless Steel Plungers, Ball Valves and Seats. Automatic Pressure Unloader. Fitted with Inverted Strainer

RUSSELL & CO.

Manufacturers of POWER SPRAYERS for Over 25 Years.

BOX HILL, E.11

VICTORIA

CLASSIFIED INDEX OF ORCHARD PESTS AND DISEASES (Continued).

Description of Pests as Illustrated.

Transit Rot.—Attacks fruits only through skin injury. It appears as a cottony mould, at first white, but quickly changing to black. The fungus produces a rot which at first is brown and quite firm; then the cells rapidly break down and the fruit becomes a watery mass.

Vine Hawk Moth (Silver Striped).—The caterpillar of this moth strips the vines of their leaves in a very short time, even quicker than the caterpillar of the Vine Moth.

Vine Moth.—The caterpillar, or larvae, of this moth attacks the leaves and young Grapes, also Virginia Creeper, and will very quickly denude the vines and creepers of their foliage.

Vine Scale.—One of the largest scales infesting plants. Attacks vines, Jap. Plums, etc. This scale has become a pest in flower gardens. Many kinds of creeping plants, viz.:—Tacsonia, Abutilon, Mandevillea, Cobaea, etc., being attacked.

White Ants. — This destructive pest attacks timber trees, vines, Apricot, Orange and Peach trees, also furniture, etc.; is a very serious enemy.

Wither Tip of Orange and Lemon.—Often called "Dieback," as twigs die from the top downwards. ("Dieback" of Apple trees may be associated with this disease.) On the undersurface of the leaf whitish grey blisters arise. The leaf withers at the tip and is gradually destroyed; blotches appear on stem.

Pea Mite.—A serious pest. The body of this mite is dull blue. They have rather long red legs. They run very rapidly when disturbed, and soon get out of sight, hiding in crevices or under lumps of earth.



Methods of Control of Insect Pests and Plant Diseases (illustrated above).

- (48) TRANSIT ROT (Rhizopus nigricans Ehr., Rhizopus arrhizus Fisch). Handle fruit carefully, preventing skin injury. Sterilise cases in boiling water. Spray shed interiors and all woodwork with 1 lb. bluestone to 5 gallons water. After picking and packing, pre-cool fruit immediately for two days at 35 deg. F., and transport to market in iced insulated trucks or louvre trucks.
- (49) VINE HAWK MOTH, SILVER STRIPED (Chærocampa celerio).—Spray with Arsenate of Lead, whenever observed.
- (50) VINE MOTH (Phalænoides glycine).—Spray with Arsenate of Lead, whenever observed. Keep soil at the foot of the vines worked up to destroy chrysalids in soil.
- (51) VINE SCALE (Eulecanium persicae).
 —Sprays same as for Olive or Black Scale. Spray in summer when young are observed with Tobacco extract.
- (52) WHITE ANT OR TERMITE (Termes lacteus).—Apply Manurial Insecticides to roots. Inject Carbon Bisulphide if nests located.
- (53) WITHER-TIP OF ORANGE & LEMON (Phoma omnivora). Prune out all diseased

wood and spray with Bordeaux Mixture (6-4-40) or Copper Soda (6-9-40).

(54) PEA MITE (Penthaleus major).—Attacks Peas, Onions, Potatoes, Beans, Beet, etc., also flowers. When mites appear, plough deeply and destroy all weeds, particularly Capeweed as the mites breed on these. They will not live for any length of time on clean cultivation, but fairly quickly migrate across it from pasture paddocks, dirty headlands, etc. Any plot freed from mites by cultivation or other treatment may be kept free by placing a trail of Creosote, or a mixture of Kerosene and Phenyle, about four inches wide, right across the plot. The mites will not be able to cross this for a few weeks.

Take 1 part of Carbolic Powder (15 per cent.), 3 parts Lime, Super. of Gypsum, and broadcast over the plants, and work into soil at the rate of 2 cwt. per acre.

Tobacco Dust and Lime in equal quantities have been used in a similar way with some success by market gardeners. Manurial Insecticide used at the rate of $1\frac{1}{2}$ to 2 cwt. to the acre has also been fairly effective in some parts.

Spray with Nicotine solutions.

Dust with Nictar dust.

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The Control of Codling Moth

Effectiveness of Lure Pots—Combination Sprays— Orchard Sanitation—Chemical Bands

By J. L. Provan, B.Agr.Sc., Senior Horticultural Instructor, Dept. of Agriculture (Vic.).

THE NEED for more adequate control measures against codling moth has stimulated the interest of a large number of Apple and Pear growers in Victoria in the demonstration plots scattered throughout the State. One very pleasing feature of this interest is the eagerness with which growers have adopted the principle of applying their sprays at the most effective period. This principle applies equally well in all districts providing that the observations of moth flight are accurately recorded by means of lure materials.

The importance of the accuracy required in determining moth flight need not be stressed because it must be apparent to all growers.

If ineffective lure materials are employed, or the lure material is not frequently renewed faulty observations may follow, and the spray application might then be made at the wrong time.

Various lure materials

have been employed consisting of vinegar, cider, Apple juice, molasses, and wine. These have all been used at a dilution of one part of material to ten parts of water. The lure is placed in any suitable container which will hold from \(\frac{1}{2} \) to \(\frac{3}{2} \) of a pint of material, and which has a wide open mouth. The lures should be placed in the trees

before the middle of October, and maintained throughout the season, replenishing at about fortnightly intervals.

The efficiency of these lure materials can be judged from the number of moths caught in the lure pots on approximately 60 acres of orchard comprising the demonstration plots.

In 1936-37, 640 lure pots caught 12,200 moths, an average of about 19 moths per lure pot. In 1937-38, 570 lure pots caught 26,720 moths, an average of 47 moths per lure pot. These figures demonstrate that not only are the lure pots of value for indicating moth flight, but it is possible that they could also be developed as a useful supplementary control measure, particularly for the "peak" period of about two to three weeks in the Spring (the first half of November), and in the Summer (the second half of February). The exact times can be obtained by observations of the lure pots maintained throughout the season.

The figures quoted above also reveal that in the 1937-38 season the moth population was more than twice as great as that in the 1936-37 season. Only by lure catch observations can this state of affairs be accurately determined during the season, and appropriate control measures be adopted to control this increased infection.

Another value of lure pots is that they will indicate to growers the positions in their orchards which require additional sprays or some other effective treatment. Most growers receive this information at the end of the season when the fruit is harvested, but it is much too late then. A better principle would be to have this information during the season so that control measures can be modified. Lure graphs showing the emergence of moths on the demonstration plots are being maintained by Orchard Supervisors in numerous fruitgrowing centres throughout the State, and growers are advised to make frequent inspections of these graphs to observe moth flight and the recommended spray treatments.

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THE SPRING "PEAK" of moth flight usually occurs during the first or second week of November, and from then onwards a good deal of infection can occur up till the end of November, unless, either the eggs are destroyed by the application of ovicidal white oil emulsion sprays, or the fruit is covered with a sufficient deposit of a poisonous material, usually, arsenate of lead. The disadvantage, of course, of the latter material is that its protection depends on a certain loss of fruit by "stinging." The young grub must bite the fruit before it is poisoned. The advantage of the white oil emulsion sprays is that they destroy the eggs.

There is a growing tendency amongst growers to employ a combination spray of lead arsenate and white oil emulsion (5 lbs. of lead arsenate paste in 80 gallons of water plus 1 to 13 gallons of white oil emulsion).

This spray acts as an ovicide as well as a larvicide, and has been used very effectively for early cover sprays in many districts of Victoria. Another disadvantage of lead arsenate sprays alone, is the difficulty in maintaining cover for a long period, while, on the other hand, white oil emulsion sprays must be very accurately timed in order to destroy the maximum number of eggs. The success of both sprays, of course, largely depends on the thoroughness of their application.

Amongst northern Apple and Pear growers there is a tendency for wider use of white oil emulsion sprays for the early cover applications; these sprays being used as ovicides in place of the usual lead arsenate covers. In orchards where the infestation is high, and on varieties particularly susceptible to codling moth, white oil emulsion sprays will be found to be very effective if accurately timed, and thoroughly applied.

XPERIENCED GROWERS will admit that spraying alone is not sufficient to control less spraying is supported by strict orchard sanitation, codling moth will continue to be a serious problem for the grower. Cases, loose bark, props, crevices in trunks and branches and debris in the tree, and on the soil around the trunk all provide ideal hiding places for the larvae of the codling moth. The elimination of this form of cover, and the substitution of cover in the form of chemical or hessian bands will materially assist in reducing codling moth infestation in the fruit. In the demonstration plots, from 19 to 20 larvae were caught in each band in the 1937-38 season, and it was estimated that this represented at least half of the larvae which escaped destruction by spray applications.

Chemical bands cost only approximately 11d. per true. This cost includes materials, their application, and removal. The bands should be placed in position before the second week in December, but in some seasons like the present one, it will be necessary to have the bands in position during the second or third week of November. The usual frequent inspections will be necessary every ten days in the case of hessian bands, but growers are also advised to inspect the chemical bands several times during the season to satisfy themselves that they are destroying at least 98 per cent. of the sheltering grubs and pupae.

Summary.

To summarise the control of codling moth, the following points should be noted:-

Apply protective cover sprays and ovicidal sprays carefully and thoroughly, at the periods which will give the maximum results. These periods are determined by the moths caught in lure pots. Observe strict orchard hygiene and place chemical or hessian bands around trunks.





390,000 ACRES DEVOTED TO THE PRODUCTION OF TREE FRUITS AND VINES.

Figures Reveal the Area Under Fruit.

The Production and Value in Each State.

THE MAGNITUDE of the fruit industry in Australia is shown by the fact that an area of 388,250 acres is devoted to the production of large tree-fruits and vines. With such a wide range of soil and climatic conditions, the varieties produced comprise all kinds that can be grown from the semi-tropics to the cold areas-Papaws, Pineapples and Bananas in Queensland, to the

cold climate berry fruits in Tasmania.

Fruit-growing plays a highly important part in the economic life of the Commonwealth. It provides a livelihood for many thousands of orchardists and vignerons and their families, but that is only part of its value to the nation. Many thousands more are employed in the manufacture of canned goods, jams, etc., and in the picking and processing of tree and vine fruits for a considerable portion of the year. Carters and drivers, fertilizer salesmen, fruit salesmen, men engaged in the tin-plate industry -these are a few of the avenues of employment opened by this Australia-wide industry.

Queensland.

Queensland specialises in Pineapples and Bananas, although fruits of many kinds are also produced there in large quantities. The production of both Pineapples and Bananas has expanded greatly during recent years, and export markets, particularly for Pineapples, are now essential. Approximately 12,000 acres are now devoted to Bananas, for which there is a good local demand, and the other States draw a large part of their supplies from Queensland. Pineapple growing has assumed large dimensions, and the quality of the canned fruit is assisting sales in the export markets. Citrus and stone fruits are also grown very extensively, and Papaws and other semi-tropical fruits flourish in the northern areas.

Victoria.

Victoria, because of its greater use of irrigation, is the premier fruit-producing State of the Commonwealth, with 116,869 acres under fruit cultivation. It produces approximately two-thirds of the dried vine-fruits grown in Australia, which last year attained the record pack of 90,000 tons, of an approximate value of £3,600,000. Nearly 2,000 growers are engaged in this branch of the fruit industry in Victoria. The next most important is the canning-fruit industry, which is specialised in the Goulburn Valley and

the metropolitan canneries. Apple and Pear production is of especial importance in the southern districts of the State, producing high quality of fruit, which has established itself on the markets of the United Kingdom. toria is the chief Australian Pear producing State. Citrus fruits are also widely grown.

Tasmania.

Although Tasmania has many other valuable resources, she is best known for fruit production, and is frequently referred to as "the Garden State," or "Apple Island," because of the 26,191 acres planted to this fruit. There the Apple grows to perfection, and the industry is a very important one. Pears (2,245 acres) and Apricots (1,408 acres), are the only other crops grown commercially on a large scale, but nearly 3,000 acres are devoted to other fruits consisting largely of berry fruits.

New South Wales.

New South Wales comes next to Victoria in the matter of acreage under fruit, with 97,860 acres. Her main variety is citrus, the area under these fruits being almost 25,000 acres. New South Wales has 13,029 acres planted with Bananas, and in this fruit its only rival is Queensland. Apples are the next most important crop, with 16,665 acres, and there are 15,158 acres of vines.

Western Australia.

"The Golden West," once famous principally because of its sensational goldfields, has developed her fruit industry to an area of 27,718 acres. Apples occupy by far the largest place, with 12,762 acres (mostly in the southwest), and next comes vineyards covering 6,051 acres. Dried Currants form the principal part of the vine crop, and a high standard of quality has been attained with this fruit. Oranges are the next most important fruit, with 3,170 acres, and Pears and Plums, each take up about 1,100 acres. Many other varieties are grown on a smallerscale, and it is evidence of the State's diverse climate that Bananas are grown successfully on 272 acres.

South Australia.

South Australia has a wine-production exceeding that of all the other States combined. A substantial portion of the 54,219 acres under vineyards is planted with wine-Grapes, which are grown both under irrigation conditions in the Murray Valley, and in the hill country by natural rainfall. South Australia ranks next to Victoria in the production of dried vine fruits, but also has 10,419 acres under Apples. Oranges of superlative quality are grown on the 4,600 acres devoted to this fruit, and many other varieties of fruit are grown commercially.

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Statistics Showing Area and Production of the Australian Fruit Industry

A STATISTICAL PICTURE of the Australian fruit industry is here presented. The figures are of the year 1936-37, and are the latest available from the Commonwealth Statistician.

From these figures readers will observe the areas under fruit in the several States, thus revealing the States which have the largest acreages of the fruits suited to their climates.

It is of interest to observe that whilst Victoria has the largest acreage under Apples, Tasmania has the biggest production of this fruit. Victoria is the largest Pear producing State. N.S.W. leads with citrus production. Queensland excels in tropical fruits. As will be seen from

other tables, S. Australia has the largest acreage under vines, yet Victoria again is the leading State for the production of dried vine fruits. Western Australia has established a good name for high quality export Apples.

In these tables, production figures are given, and the yield per acre and the gross value. The method of calculating the value is given in the footnote accompanying Table 3.

It has to be acknowledged that certain anomalies appear to be evident. The methods of collecting statistics in the several States are not uniform; nevertheless the figures are of value in that they are comparable year by year as coming from the same sources, and they indicate certain trends.

TABLE 1.—AREA UNDER FRUIT, ALL STATES, SEASON 1936-37

TABLE 1,—	-AREA UNDE	ER FRUII,	ALL STATES	, SEASUN	Australian	Fotal,
	N.S.W. Vic.	Q'land.	S.Aust. W.A	A. Tas.	- · · · ·	ing and bearing
Fruit.	Acres. Acres	s. Acres.	Acres. Acre	es. Acres.	Acres.	Acres.
Apples	18,409 30,95	4 5,258	10,941 13,0	31 24,770	44	103,407
Apricots	2,045 4,14	1 304	3,173	02 1,371	3 3	11,739
Bananas	13,573	- 7,305	2	48	and an in the state of	21,126
Cherries	3,778 1,39	7 13	958	50 102	1	6,299
Citrus—						
Oranges-Washington			0.000	w		
Navels Other	8,048 12,702 5,36	3,534	3,202 (3,0 1,492 (59 5 —		41,929
Mandarins	4.345	5,004		30 —		41,040
Lemons	2,872 1,69	384		00		5,893
Other &	585 (b)) - 10	68	45 —		698
Coconuts		⊰ × 300 −				- 300
Custard Apples	Sec. 1.5-11.	- 302_	the state of the s	فساز دربرريب	() () ()	307
Figs	295 370		403	98		1,495
Mangoes	§ 1, 6], G	- 15 - 11 363	in the second			369
Nectarines	639			25 —	2, 1	1,384
Nuts	1,018 530			58		3,763
Olives	A 3 6 - 1 4		305	حبير المراكم مريب	The last the same of the	355
Passionfruit	1,005 60			51 St. —	and the second of	1,844
Pineapples	225	- 6,314		15	and the state of t	6,554
Papaws	24	≟ <u>∤</u> 876			당기를 받는다.	900
Peaches	7,677 12,223			64 75		23,858
Pears	4,039 11,56			30, 2,412	4	21,298
Persimmons		9 🛴 🧺 6	(d)			168
Plums	2,848 4,468	3 1,24 9	and the second of the second of	36 5 543		15,647
Prunes	2,870		(e).			4 500
Quinces	562 76			00 63	2	1,726
Raspberries	(f) 169		111	1,595	and the second of the second o	1,875
Strawberries	14 30			33 291 12 1,053		983
Other Small, N.E.I.	9 32		97 47 . 1	06 1,053		1,504
All Other, N.E.I. (a)	45 1,63	3	47 , 1	.00 🔯 10		2,113
Total	. 87,797 76,76	0 28,728	29,755 22,1	.43 32,285	5 66 10 10 20 20	277,534
-						

⁽a) Includes fruit grown for private use (b) Included with Oranges, etc. (c) Included with Other Oranges.

⁽d) Included with "All Other, N.E.I." (e) Included with Plums. (f) Not Available.

TABLE 2.—FRUIT PRODUCTION, ALL FRUITS, EACH STATE.

						Season	
Fruit, Unit of Quantity, N.S.W.	Wie	Qld.	S. Aus.	337 A	Tas.	1936-37	Total,
Apples bushel 1,410,685		215,279			4,611,000		10,998,866
Apricots , 127,672		7.343	357,022	63,669	94.700	- 50	: 830,280
Bananas		723,622	001,022		34,700		2,369,175
Cherries		116	40,687	1,236	5,000	12	218,699
Clrus—	00,000	. 110	40,001	1,200	9,000	_ 14	210,000
Oranges-							
Washington Navels ,, 898,278	334,708		c 513,963) 302,235		2_5	
Other 1,272,724		307,439		002,200			4,351,351
Mandarins	,		(c)	14,981	¥181	Sec	1,001,001
Lemons		24,151	49,152	63,685			563,075
Other				1,677			57,335
Coconuts dozen		· (b)		2,011	·]		(b)
Custard Apples bushel . 464	1				7	مست ا	25,395
Figs " 10,476	20,260	5,703	20,683	39,375	이 뭐 하는데	6.	96,502
Mangoes 315	· · · · ·	51,152					51,467
Nectarines, 31,669	12,681	- /2,052	23,649	17,175		. 8	87,234
Nuts 1b. 429,744	190,180	يند إلى الأ	1,135,232	71,805		6	1,826,967
Olives cwt. 168	1,142	- 1 - 1	12,723	- No. 11 - 12	1.00		14,028
Passion Fruit bushel 31,550	26,635	11,425	230	5,804			75,644
Pineapples dozen 34,298	-	1,227,734	· . —	832			1,262,859
Papaws ,, 2,284		158,067	· ·		480 Ji —	-	160,351
	1,269,716	76,662	146,399	67,373	4,300	45	2,132,654
	1,657,763	21,491	242,336	101,472	270,000	99	2,692,207
Persimmons " 10,461	4.	∵ 334	. (d)	-			11,104
Plums " 137,54	,	64,663	168,017	86,593	98,000	192	770,430
Prunes , 274,669			(e)			6	344,699
Quinces , 43,000		770	24,189	8,620	7,200	41	128,936
Raspberries cwt.			2,628		69,259		74,706
Strawberries " 158	/ -,	3,293		689	8,571		23,214
Other Small, N.E.I	/	96		(b)	52,205	ر مند	64,228
All Other, N.E.I bushel 2,892	(b)	(b)	2,547	(b)	(b)		5,439

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TABLE 3.—YIELD PER ACRE (a) ALL FRUITS, EACH STATE, 1936-37.

	N.S.W.	Vic.	Q'land.	S. Aust.		Tas.	A.C.T.
Apples bushel	108.62	110.28	67.04	92.97	110.21	213.38	29.78
Apricots "	70.93	49.85	39.09	123.28	104.89	78.85	25.00
Bananas,	139.74	, — <u>, — </u>	145.22		183.85	-	· '
Cherries	41,31	49.14	8.92	73.05	44.14	61.73	12.00
Citrus—•							
Oranges - April 19 19 19 19 19 19 19 19 19 19 19 19 19							
Washington Navels	133.24		1	173.52) 115.89		
Other,	114.78	121.68	118.80 🗸	106.27	}	_	_
Mandarins	77.70		·	(c)	107.78	, i	
Lemons	109.48	134.10	112.33	130.38	149.50	· -	·
Other ,,	127.07	(b)	12 - ma	122.84	93.17	10 m	· <u> </u>
Coconuts dozen	ray 🕳 👉		(b)	. ,		4. —	
Custard Apples bushel	116.00	to a second	126.55	, F-	٠٠٠ . ١		š <u></u>
Figs **	40.44	72.62	196.66	57.77	116.49	,	(b)
Mangoes	63.00	market .	187.37		المسر رازحي	, ³	
Nectarines	64.76	83.98	58.63	101.06	106.68	2 × 📥	8.00
Nuts lb.	634.77	448.53	10 mg	901.69	253.73	, - T	(b)
Olives cwt.	40.75	26.56	and the second	42.27	· · · · · · · · · · · · · · · · · · ·	10 miles	100
Pineapples dozen	215.68	~	278.52		83.20	, '	·
Papaws	114.20	· · ·	308.12	1 : .	27 -	- ,	1 <u> </u>
Peaches bushel	98.35	137.71	66.55	104.57	104.78	79.63	22.50
Pears "	117.28	178.73	69.10	140.48	117.44	130.88	24.50
Persimmons	73.67	38.63	55.67	(d)	<u> </u>	_	-
Plums,	54.36)	76,96	66.87	70.92	100.50	188.46	32.00
Prunes	97.82		ે કે	(e)	- 10 <u>- 1</u>	, 1 ° <u> </u>	. (b)
Quinces and an arrange of the second	90.91	71.39	77.00	118.57	101.41	124.14	41.00
Raspberries cwt.	(b) k	16.66	ہ شمانی	23.68	- 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1	43.42	-
Strawberries Strawberries	11.29	21.27	19.49	28.48	20.88	29.45	, <u> </u>

(a) Yield per acre of trees or plants in bearing. (b) Not available. (c) Included with Other Oranges. (d) Included with "All Other, N.E.I." (e) Included with Plums. (f) New South Wales only. (g) Victoria, South Australia and Tasmania only. (h) Exclusive of Tasmania. (i) Includes bounty paid to fruitgrowers. (j) Including fruit grown for private use.

Notes.—Gross value is the value placed on recorded production at the price realised in the principal markets of each State. For the conversion of bushels in the above table to lb. avoirdupois the following factors should give reasonable approximations:—Apples, 42 lb.; Apricots, 45 lb.; Bananas, 56 lb.; Cherries, 38 lb.; Oranges and Lemons, 42 lb.; Custard Apples, 35 lb.; Figs, 32 lb.; Mangoes, 40 lb.; Nectarines, 50 lb.; Passion Fruit, 25 lb.; Peaches, 45 lb.; Pears, 45 lb.; Persimmons, 44 lb.; Plums, 45 lb.; Quinces, 42 lb.

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TABLE 4,—FRUIT PRODUCTION, GROSS VALUE, SEASON 1936-37

	N.S.W.	· Vic. (i)	Q'land.	S.Aust. (i)	W.A.	Tas. (i)	Australian Capital Territory.	Total.
Fruit.	rø.							
	£.	£	. ₂₁ 🚨 -	Brit £ stj	£	· · · · £	£ 3 (85.5)	: .1 £
Apples	558,630	618,159	70,196	150,173	407,701	989,100	674	2,794,633
Apricots	73,360	49,452	5,085	114,671	26,529	19,700	29	288,826
Bananas	807,700		282,850	7.41. - 1 .	23,475	· 'W X:		1,114,025
Cherries	121,480	27,656	185	20,852	2,396	2,000	11 7.7	174,580
Citrus								
Oranges-Washington			Santa 1					
Navels	270,500	112,964	:	171,886	}			1.470.040
Other A. A. A. A. A. A.	431,480	96,548	109,637	38,755	120,422		1234 }	1,470,943
Mandarins	107,010	5,593	· · · · · · · · · · · · · · · · · · ·	(c)	6,148			
Lemons	84,860	64,165	7,416	14,131	23,351	1. 1		193,923
Other	18,970	265		1,750	7 - 718	· · . · ·		21,703
Coconuts	· (,		75	and the second	التكوية الأباري	14 () () () (<u>—</u> "	75
Custard Apples	210	·	8,513	^^ ', →'	F 1984	- p 1 		-8,723
Figs	7,910	6,585	2,086	9,595	8,285	· -	5	34,466
Mangoes	170	1 < 2 1	16,380	South Street	r.: . — :	: 1 1 🕶		16,550
Nectarines	19,760	4,121	1,335	6,937	9,339	, , , , , , , , , , , , , , , , , , , 	50 44 000	41,497
Nuts	12,657	7,060	100 <u>- 1</u>	36,743	2,693	.,	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	59,153
Olives	300	571	<u> </u>	5,725		1/	ر درو ست	6,596
Passionfruit	26,290	13,983	8,226	150	7,655			56,304
Pineapples	8,790	1	. 245,230	1 	- 552	ر پیسان کی ا		254,572
Papaws	210	-	14,919	,	1		— 13 - 12 to	15,129
Peaches	231,040	301,558	34,373	42,217	30,317	910	18 🖟 😘	640,433
Pears	131,560	357,375	6,180	55,689	49,445	69,500	33	669,782
Persimmons	2,750	112	100	· · · — ·	المستارين	6 . t. — i	en e	2,962
Plums	56,450	40,392	25,450	- 38,889	27,565	18,000	79	206,825
Prunes	116,730	9,628		(e)		خصا را ا	3	126,361
Quinces	12,590	7,895	115	3,628	2,388	1,400	12	28,028
Raspberries	10	5,914	المستعارات	3,614		73,400	. —	82,938
Strawberries	850	15,571	10,290	9,736	2,690	15,500	\	54,637
Other Small, N.E.I.	200 -	10,577	150	2,383	166	61,920		. 75,396
All Other, N.E.I. (j)	1,173	55,701	8,160	. 849	2,838		17	68,721
Total	3,103,640	1,811,845	856,951	728,373	754,673	1,251,430	869	8,507,781

See Notes on Table 3.

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Orchard Soils and Fruit Tree Nutrition

GREEN MANURING — MINERAL DEFICIENCIES IN FRUIT

TREES — FERTILIZER PRACTICES.

(By A. G. Strickland, M.Agr.Sc., Chief Horticulturist, South Australian Department of Agriculture.)

SOIL MANAGEMENT designed to maintain and improve fertility is an important feature of all farming practice, but in the case of orchard land, is of particular importance in consequence of the semi-permanent nature of orchard plants. Fruit trees, being perennials, are usually intended to occupy the same land for a long period of years, and any progressive deterioration in the fertility of the soil which they occupy, involves depreciation, and perhaps loss, of a substantial asset.

Fertility of an orchard soil involves more than its plant food content, and cannot always be maintained or improved merely by cultivation and the application of artificial fertilisers. Fertility level is intimately connected with such factors as depth and topography of the soil, its drainage properties, the amount and nature of the cultivation it receives, the extent to which organic matter content is maintained, and many other factors too numerous to specify.

Presuming that a soil is reasonably well suited to the growth of a particular fruit crop, and that grossly adverse conditions, such as saline accumulations, or waterlogging do not prevail to any marked extent, there is still necessity to maintain and, if possible, improve its fertility level.

All soils devoted to fruit growing are not such that they are incapable of improvement, and, moreover, even the best types of soil will deteriorate markedly during the lifetime of an orchard, unless measures are taken to conserve their original fertility.

Green Manuring.

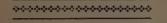
Orchards in South Australia are generally clean cultivated during Spring, Summer, and early Autumn, a system

of soil management, which although necessary for conservation of soil moisture, leads to gradual but certain loss of organic matter or humus; such loss of organic matter must be made good by means of annual additions of that material. Stable manure, straw, lucerne, distillery refuse, etc., may be applied to the land with this object in view, but the generally accepted and most convenient method of adding organic matter is by ploughing under in late Winter or early Spring of a large bulk of green stuff grown throughout Winter between rows of trees.

This green stuff may consist of a crop of peas, beans, barley, rye, or other suitable plant which has been sown in early Autumn; in other instances, it may consist of miscellaneous weeds permitted to develop by cessation of cultivation in early Autumn, and perhaps encouraged by a light dressing of artificial fertiliser broadcast between the trees in Autumn.

The indirect advantages of Winter green cropping (or, as an alternative, Winter weed growth) are many; to quote two such advantages, green crops aid in the prevention of soil erosion in hilly country, and they act as efficient drainage systems in soils which tend to become waterlogged in the rainy season. Water erosion of soil on steep slopes has of itself been responsible for appreciable loss of fertility of portions of many orchards in the Mount Lofty Ranges, in that the most fertile portions of the soil profile have been almost completely removed over a period of years. Most important, however, are the facts that green cropping in some form or other is the only economic method of maintaining the organic matter of the soil on large areas, and that maintenance of organic matter is the most important single factor in orchard soil management.

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CITRUS
ORCHARD.





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ORCHARD SOILS AND FRUIT TREE NUTRITION—(Continued).

At this juncture, it is worth while quoting conclusions reached by the Pennsylvania Agricultural Experimental Station in United States of America from orchard fertiliser experiments conducted over a period of 25 years; I quote:—

"Any treatment that has influenced the fruit trees at all has done so in the following order:—First, the cover crops; perhaps several years late, leaf color; shortly after, branch growth and circumference increase, and last of all, vield.

"The reason for this sequence of results is that the treatments—whether chemical fertilisers, manure, or cover crops—have influenced yields, chiefly by changing the organic matter content of the soil; that is, those treatments which have resulted in the production of larger cover crops have ultimately resulted in the production of more fruit."

Fertilisers for Green Manure Crops.

Artificial fertilisers have definite value in connection with green manurial practice, and their use in this regard may conveniently be considered separately from their use as direct applications to fruit trees.

As previously stated, green stuff for Spring incorporation with an orchard soil may be secured in two ways—by deliberately sowing a green crop in Autumn, or by encouraging volunteer Winter weed growth between the trees

In the case of sown green crops, those of a leguminous nature—beans, peas, etc.—will usually benefit considerably if sown together with 1 cwt. to 2 cwts. of superphosphate. In cold districts or in soils which tend to be sour, peas or beans often make poor growth, and under such conditions, a cereal crop such as barley or rye, will generally yield a bigger bulk for ploughing under; a cereal green crop will respond to superphosphate in a soil moderately well supplied with nitrogen, but in some of our Hills orchard soils, which over a period of years have become deficient in both humus and nitrogen, a green crop of the cereal type will respond even more markedly to a light application—say, 1 cwt. per acre—of sulphate of ammonia.

Where volunteer weed growth is relied upon for annual production of green stuff, Autumn broadcast applications of either superphosphate or sulphate of ammonia are again useful. If miscellaneous herbage consists largely of cape weed (or dandelions) and various grasses which make scanty growth during Winter, it is probable that 1 cwt, of sulphate of ammonia, broadcast in early Autumn will result in much stronger growth of these weeds. On the other hand, if it is desired to encourage trefoils and other legumes, a better response may be obtained from Autumn applications of superphosphate.

Fruitgrowers who rely on weed growth as their Winter cover, and who are not altogether satisfied with its bulk, will find it well worth while experimenting with Autumn broadcast dressings of superphosphate and sulphate of ammonia.

Fertilisers Applied for Direct Utilisation by the Tree.

Green manuring has been described as the most important phase of orchard manuring, but there is the additional necessity for more direct feeding of orchard trees by means of fertiliser applications at a time of the year when the tree is judged to be most likely to require some mineral supplement.

It should not be thought that such direct feeding is always essential for there are many rich orchard soils where there appears to be no immediate necessity for direct fertiliser applications to trees, or to express the matter more accurately, on such rich soils, applications of artificial fertiliser to the trees do not result in marked responses in respect of either growth of cropping.

The fundamental problem of fruit tree nutrition is one concerning the growth processes of the tree and, within limits, the yield of tree fruits is correlated with growth, in other words, fruit production is dependent upon wood production.

Fruit trees making either poor growth or excessive growth are usually unproductive, maximum fruitfulness occurring when trees are in a condition of moderate vigor.

These considerations of the relations between growth and fruitfulness may be to some extent illustrated by computations (based on analyses) of the proportions of a tree's annual intake of minerals utilised for wood and shoot growth and for fruit; the major portion of a fruit tree's intake of mineral nutrients is employed in growing, and only a small portion enters into the composition of the fruit crop produced.

With these facts in mind, it should be readily understandable that applications of artificial fertiliser to healthy trees which are making satisfactory annual growth, may not always result in appreciable improvement in yields; further, it is apparent that weak growing, unhealthy trees cannot be expected to produce maximum crops. It is trees of the last mentioned type which will give the most marked response to timely application of suitable artificial fertilisers.

Symptoms of Mineral Deficiencies in Fruit Trees.

ROM THE FOREGOING, it will be realised that the general appearance of fruit trees—the vigor and nature of their growth—may be expected to give some indication of whether or not they are suffering from the lack of some essential mineral, and that such indication may well serve as a guide to fertiliser practice on individual orchards. In point of fact, by means of pot culture of various types of the fruits, it has been possible to demonstrate very clearly that when certain fruit trees are grown under poor supply of various minerals, they will exhibit specific symptoms as a result of deficiencies of these minerals.

Pot culture experiments

on Apple trees have been in progress for a number of years in both United Kingdom and Australia, and a great deal of information is now available as to the effect of lack of nitrogen, lack of potash, and lack of phosphoric acid on tree growth, and general tree health.

Furthermore, in connection with many types of fruit trees, information is becoming available concerning the connection of various other mineral deficiencies with diseases of a previously obscure nature. As instances, one may quote "Leaf Scorch" of Apple trees due to deficiency of potash; "internal cork" of Apples occurring in N.Z., and in parts of Tasmania and N.S.W., due to deficiency of the minor element boron; one further example is the possibility that "Mottle-Leaf" of citrus trees is due to a deficiency of zinc; in parts of South Australia citrus trees so badly affected with mottle-leaf that they were fit only for grubbing have been restored to full vigor

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MUST form the basis of the manurial programme," says Dr. T. Wallace, of the Long Ashton Research Station.

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F. 3/38

ORCHARD SOILS AND FRUIT TREE NUTRITION—(Continued).

and productiveness through application of sprays containing zinc.

Trees sprayed in such manner are able to absorb small quantities of zinc through their leaves, and these minute quantities have been sufficient to bring about complete restoration of tree health.

Consideration of symptoms occurring in various plants as a result of deficiency of so-called minor elements, such as boron, zinc, copper, manganese, and so on, is, of course, too extensive a subject to be dealt with in this paper.

It is desirable, however, to make reference to the symptoms exhibited by Apple trees when they are suffering from deficienciés of those elements commonly known to be deficient in certain soils and which enter into the composition of the artificial fertilisers of commerce.

Deficiency of Nitrogen.

Deficiency of nitrogen—an element which is supplied by such artificial fertilisers as sulphate of ammonia and nitrate of soda—is by no means uncommon in South Australian orchards. Apple trees suffering from shortage of nitrogen make very restricted growth, the foliage is scanty, individual leaves are small and very pale green, instead of deep green; in Autumn, the leaves develop very bright yellow tints, and fall early, defoliation characteristically occurring first at the base of shoots and progressing upwards.

The bark of such nitrogen-deficient trees is usually a pale reddish color.

Deficiency of Potash.

This deficiency is not so commonly observed in Australia, although several cases of what was judged to be temporary potash deficiency were observed in Apple orchards at Light's Pass and in the Verdun district during last growing season.

Under poor supply of potash growth of trees is not markedly restricted as in the case of nitrogen deficiency, and such trees may appear comparatively normal in the early part of the season. Later in the year, however, a severe scorching of the margins of the leaves may occur,



Ploughing in a heavy crop of Tick Beans in a young Citrus grove.

coupled with premature leaf-fall. In contrast to the manner of defoliation of nitrogen-deficient trees, leaves of trees suffering from potash deficiency defoliate progressively from tips of shoots towards the base. Leaf scorch occurring in certain South Australian Apple orchards last season was accompanied by very early leaf fall, the affected trees being absolutely bare of leaves towards the end of the season; later still, there occurred a fresh bursting of buds, and some trees even flowered and set fruit in April-May.

Deficiency of Phosphoric Acid.

Lack of sufficient phosphoric acid (supplied as artificial fertiliser in the form of superphosphate) in pot cultured Apple trees results in restricted growth and small narrow dark-green leaves bearing purple coloration at the margin. As in the case of nitrogen deficiency, the leaves develop bright Autumn tints and tend to fall very early. Buds burst rather late in Spring, and there is a tendency for dying of buds and development of rosettes at shoot terminals.

Symptoms of deficiency of some other elements of plant nutrition have been established and catalogued in the same way as those of nitrogen, phosphoric acid and potash, but I will confine my present remarks to these three latter plant foods which enter the composition of artificial fertilisers commonly in use.

Diagnosis of Mineral Deficiencies as a Guide to Fertiliser Practice in the Orchard.

THE PROCEDURE ADOPTED by the physician in cases of sickness of human beings is well known to most of us. He tests heart and lungs, determines the body temperature and pulse, and looks for any abnormalities in appearance of the patient which will give a clue to the nature of the sickness, and guide him as to the medicine or diet he will prescribe.

With the establishment of the value of mineral deficiency symptoms in various types of fruit trees, a similar procedure in diagnosis and prescription of orchard fertiliser treatment is to some extent possible. All orchards do not require the same fertiliser treatment, and a decision as to which fertilisers are to be used should be arrived at after careful observation of the trees, of their condition of growth, and of any abnormalities which they may show.

There is a great deal of evidence that unbalanced manuring of fruit trees may upset them—just as an unbalanced diet will lead to physiological troubles in the human frame.

As an instance, it has been shown in United Kingdom that "leaf scorch"—a symptom of potash deficiency in Apple trees is accentuated when low potash goes hand in hand with a liberal supply of nitrogen. Although there is but sparse information available regarding desirable balancing of fertilisers for fruit trees, it would seem desirable to utilise complete fertilisers for routine manuring of deciduous fruit trees which do not show well defined symptoms of deficiency of any particular element. A complete fertiliser known as 2:2:1 mixture (consisting of two parts of superphosphate, two parts of sulphate of ammonia, and one part of sulphate of potash) is suggested.

Where, however, the appearance of trees suggests definite deficiency of any one element, recourse of applica-

tions of a single fertiliser containing the particular element concernéd is indicated until such times as trees become more normal in appearance. Observation in the Hills districts of South Australia indicates occasional occurrence of nitrogen deficiency in Apple trees, and where trees are showing the typical symptoms of this deficiency, the use of straight sulphate of armmonia at, say, 3 lbs. per tree per annum, is suggested until such time as the trees again attain normal vigor.

The purpose of this paper is not to make specific or even generalised recommendations as to quantitites and types of artificial fertilisers to apply to various types of fruit trees, but rather to indicate that arbitrary recipes for manuring of fruit trees can have but little practical value.

To utilise artificial fertilisers to the best advantage the fruitgrower must attempt diagnosis of his trees and adjust his fertiliser programme accordingly.

For this reason, and because of the limited time which can be devolved to this paper, I will not harass you with a lengthy list of tentative recommendations which may be quite unsuitable for individual orchards.

Recommendations as to fertiliser programme in any orchard must vary with the conditions of growth, fruitfulness, and general health of the particular trees in question.

Methods and Time of Application of Artificial Fertilisers.

After a decision has been made as to the fertiliser programme best suited to any given collection of trees, there still remains the necessity of applying the selected fertilisers in such a manner and at such a time that the tree can make use of them.

Certain fertilisers, particularly superphosphate and sulphate of potash, do not readily move downwards in the soil, and as the main feeding roots of fruit trees are generally situated at some distance below the surface, it is desirable to place fertiliser applications intended for direct utilisation of the trees as deeply as possible. The application should be ploughed under or placed in deep furrows.

In so far as time of application is concerned, present knowledge suggests that application should be made prior to growth periods; fruitfulness is closely related to growth reactions, and the major part of absorbed soil nutrients are required for growth. Applications to deciduous fruit trees should be made two or three weeks before bud-burst, and in the case of citrus trees, just before each of the two main growth periods in Autumn and Spring.

Conclusion.

This paper has been designed not so much with the objective of advising fertiliser requirements for all types of fruit crops and all types of orchards, as to stress the complexity of the subject of fruit tree manuring, and the necessity for each individual grower to be a keen observer of the good or bad habits of his trees.

The building up of organic matter by means of routine green manuring is good practice or, in fact, essential practice, on every orchard; the matter of additions of fertiliser aimed at direct supplementing of the mineral diet of trees at any particular period is often less important, but more complex, and for final guidance in this regard it is always best to consult the trees themselves.

LOSSES OF NITROGEN DUE TO LEACHING BY WATER.

Advantages Possessed by Sulphate of Ammonia.

In a district where cultivation and production is as intense as is required for fruit and vegetable growing, the cost of the plant food nitrogen must become a most important factor. Unfortunately for these industries this plant food is dearer than any of the others demanding application. Not only, however, is it the most costly to purchase, but losses are liable to occur in the soil which it is not the case to any extent with either phosphate or potash. Because a fertiliser is soluble in water before it is applied does not always mean that water will wash it away in the soil. Changes may take place there which prevent this from happening. Such changes occur when super, or potash fertilisers are applied. Where nitrogenous fertilisers are concerned the case is somewhat different.

There are three forms of nitrogen most commonly applied to the soil, namely, protein nitrogen, ammonia, and nitrate nitrogen. No matter which of these forms is applied it ultimately changes to the nitrate form, and it is considered that it is mainly in that form that plants take up their nitrogen, although there is very good reason to suppose that plants can also feed direct from am-monia. It is when the nitrate form has been reached that losses due to leaching by water are apt to occur, so that no matter what form is applied some loss, depending of course on how much water passes through the soil, will take place. This loss, however, can be minimised by the intelligent choice of fertilisers. It is partly for this reason that the "ammonia" form is so popular throughout the world. Not only is it the cheapest form to produce and therefore to buy, but as soon as it is applied to the soil, especially acid soils, it is seized upon by soil particles and held so firmly that although plants and bacteria may remove it to their advantage, water cannot, and it thus provides a slow but sure feed, and whilst rootlets are present to absorb the converted nitrate, little loss will occur.

This advantage which sulphate of ammonia possesses when taken into joint consideration with its price per unit of nitrogen and its concentration as affecting transport costs, all create appeals which the intense culturist cannot afford to ignore.

NEWS IN BRIEF.

About 88 per cent. of the world's exports of Apples are absorbed by the British market. The Economic Committee's report suggests that the capacity of this market is unlikely to increase, and points out that the average imports for the past four years were 2½ million bushels below the average of the previous four years.

Pear production throughout the world in 1937 is estimated at 115,136,000 bushels, the United States being the largest supplier with 32,760,000 bushels. Australia is tenth on the world's list with 2,640,000 bushels.

The principal importers of Pears in 1937 were the United Kingdom (2,581,000 bushels), Germany (1,127,000 bushels), and France (560,000 bushels).

Since 1926, the export of canned fruit from Australia has increased from 295,663 cases to 1,700,000 cases in 1928. Since 1934 the domestic consumption has risen from 443,998 to 963,150 cases in 1987.

Fertilisers for Fruit Trees

New Technique on Trial.

(By G. de Vahl Davis, B.Sc.Agr., and David H. Case, B.Sc.Agr.)

OME interest was recently aroused by the publication, in England, of a Bulletin on the subject of fertilisers for fruit trees, from the pen of the worldfamous horticulturist, Dr. A. T. Wallace, of the Long Ashton Research Station. In general, this Bulletin claimed that whilst nitrogen was the dominant factor for quality of fruit, there were grave dangers attendant upon its use unless the stamina or the "toughness" of the trees was guaranteed by the plentiful use of potash. Contrary to accepted belief, Wallace claims that the need for use of potash is greater in the earlier years of the life of the tree; he goes so far as to say that land which is to be planted should, in the previous year, have a heavy dressing (3 or 4 cwt. per acre) of potash ploughed deeply under and that this dressing, reducing annually, perhaps, by a half hundredweight per acre, should be continued until the trees are well established at six or seven years when they should settle down to receive an annual dressing of 1½ or 2 cwt. The quantities of nitrogenous fertiliser to be used should, conversely, be very light in the early years, but may increase later to 2 or 3 cwt. per acre per annum. Nitrogen must be used with reference to conditions. After a heavy crop, the dose may be increased. If the crop has failed for any reason, caution should be applied in deciding on the ensuing dressing of nitrogenous fertiliser.

With nitrogen, the time of application is important; it should be used just before blossom-burst in the late Winter or early Spring. It may be top-dressed all over the area for it penetrates the soil (if nitrate of soda or sulphate of ammonia is employed) very readily. With potash the time of the year is not important but the method of application is most important; potash, although completely soluble, does not pass readily through the soil, but is taken up and held by the soil itself. Consequently, in order that the roots may have access to it, potash must be placed deeply in the soil. Wallace recommends either

Tree on which 2-2-1, 6 lbs. per tree was used.

placement in trenches 10 inches deep in a circle around the "drip" of the tree, or deep ploughing—to as great a depth as possible.

As regards phosphoric acid, Wallace points out that the uptake of average fruit trees is very small, and states that he has never seen a fruit tree in the field suffering from definite deficiency of phosphate. On the other hand, he stresses the fact that a deficiency must not be allowed to develop and, accordingly, he recommends that phosphoric acid, in the form of super., should be applied each year with the green manure crop. If the practise of green manuring is not followed, the superphosphate may be applied either in a light annual dressing at the same time as the potash, or every three to five years in larger quantities. In any case, unless applied to the green crop, the super must be placed as deeply as the potash.

The authors of this article have long believed that the ratio of plant foods applied to fruit trees in Australia can be improved and that the time of application needs investigation. It has long been their opinion also that it is

well worth while feeding young trees.

To test these theories an experiment has been undertaken at Stanthorpe to discover the best time of application. This trial is now complete and has successfully demonstrated that in light granitic soils, potash gives better results when applied in May than when applied in September. This effect persisted and grew stronger during the period of the trial.

An experiment is now in progress at Mount Barker, W. Australia, as to whether or not it pays to feed young trees just as much as it does mature ones. The complete manure trees are much bigger and better framed than trees not so well fed and obviously are ready to carry more fruit. A record of the crop in 1937 demonstrates this very well.

				Cases	per acre
No	Manure	 	 		60
No	Potash	 	 		85
	Phosphate				
	Nitrogen				
	nplete Manı				

The orchard was planted on virgin soil, which would have a quantity of available plant food present. Yet it seems that the young trees wanted more than this right from the start.



Tree on which 2-2-1, 6 lbs. per tree was used—plus 2 lbs. of Muriate of Potash per tree.



Algerian Oats and Purple Vetch growing on the orchard of Mr. C. Buchele, Batlow, N.S.W. This was fed with super, ammonia and potash.

The question of the correct ratio of plant food to apply is the subject of another experiment which is giving promising results in the Bridgetown, W. Australia, area. The two illustrations on page 38 are of a few with ordinary 2:2:1 and one fed with 2:2:1 plus 2 extra lbs. of potash per tree. The improvement noted clearly indicates that

better results can be obtained than those we get from our fertiliser mixtures at present.

Another experiment along these lines has recently been started by Mr. C. Buchele, of Batlow. This trial is based on the findings in Dr. Wallace's bulletin and is also a test of the value of potash on granitic soils in his district.

The block of about 230 trees, planted in double rows of the three varieties, has been subdivided into four sections running across the varieties. The whole block will be planted down each year to a green manure crop, sown with 2 cwts. per acre of 3:1 super/ammonia. This will supply all the phosphoric acid that the block will receive. The illustration on this page indicates that the green manure crop in the past Winter is likely to enrich the soil to a marked degree, both with humus and with nitrogen. The crop consisted of Algerian oats and purple vetch.

In the Spring of each year, the whole block receives a dressing of 1 bag (about 12 cwt.) per acre of sulphate of ammonia. The instructions are that the application is to be made with reference to the estimated root spread; as the trees approach full growth, the quantity is to be increased and the dressing can be uniformly spread over the whole area.

Two of the four blocks are to receive a quantity equal to 2½ lbs. of potash per tree; this is to be spread over the whole surface and ploughed under as deeply as possible. The season is not specified, but a preference is expressed for the Autumn in order to get the benefit of the Winter rains.



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FRUIT WORLD ANNUAL.

The trial is being controlled for Mr. Buchele by Pacific Potash Limited, and the results will be watched with the greatest interest since there is a general and, perhaps, a well-founded belief amongst the orchardists of the Commonwealth that they have not been, in all cases, getting the results from their fertilisers that might have been expected.

IMPORTANCE OF SOIL REACTION.

Scientific research is going on all over the world to determine the influence of minor elements on plant growth. It has been conclusively demonstrated that soil reaction should be the first consideration in choosing fertilizers and that on acid soils preference must be given to fertilizers with an alkaline reaction.

Experience in recent years has shown that certain minor elements are just as important to plant life as the main nutrients, nitrogen, potassium, phosphorus and calcium. The best-known is the effect of boron, lack of which causes several plant diseases.

The fact that such diseases had been observed has in many instances proved that they were due to boron deficiency. The boron content of healthy plants is higher

than that of diseased ones.

A special effect of boron is the prevention of damage due to an excess of lime. Investigations of plant diseases have shown that some are due to copper deficiency to which Oats, Wheat and Barley are particularly sensitive. The Grey Speck disease of Oats is due to manganese deficiency, while Molybdenum was said to prevent diseases in Clover which were due to the too frequent growing of this crop. Many fruit diseases are traceable to lack of boron.

A vigorous fertilizing policy is necessary if one wishes

to harvest big crops. It is most noticeable that liberally fertilized crops have greater power of resistance to all difficulties encountered during growth than poorly fertilized crops. This is a most important matter and should always be taken into consideration in calculating the profit from fertilizing and is well worth remembering whenever the value of a vigorous fertilizing policy is under discussion.

It is often stated that where a large crop has been grown a large crop can be grown again, but the farmer who allows himself to be influenced by this argument in order to economise in the use of fertilizer will soon pay the penalty in the form of a very small yield.

It pays to buy fertilizer in good time. This money is well spent because on the whole, prices of fertilizers have not increased anything like as much as most other commodities so that it is now more profitable than ever for farmers, vegetable growers and orchardists to give the most serious consideration to their fertilizer requirements.

SOME RANDOM THOUGHTS.

He that loseth wealth loseth much: he that loseth friends loseth more: but he that loseth spirit loses all.

Nothing will ever be attempted if all possible objections must first be overcome.—Samuel Johnson.

Reflect upon your present blessings—of which every man has many—not on your past misfortunes, of which all men have some.—Dickens.

To read without reflecting is like eating without digesting.—Edmund Burke.



When Things Are Tough!!

No implement can do so much for you—save so much time and so much money—as a ROTARY HOE.

CULTIVATION:-

ONCE OVER does the job. Weeds are chopped up and turned in to form valuable humus.

By working right up to the trees hours of chipping are saved.

SPRAYING:-

An efficient spraying outfit may be attached to, and driven by the Hoe. 250-300 lbs. pressure.

POWER WORK:-

A belt drive pulley wheel may be used to drive irrigation pumps, saw benches, and stationary engine work.

What's more the Hoe goes to the job. You don't have to bring the job to the Hoe.

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Howard Auto-Cultivators, Windsor Road, Northmead.



your orchard cultivation with these efficient



The Disc Cultivator that practically eliminates hand chipping! Notice how it cultivates RIGHT UP TO THE TREES, yet the horses and driver are well clear of branches. A hand lever, angling the control coulters, enables driver to guide implement closely around tree trunks. Discs are reversible for inthrow or out-throw; adjustable for level or sloping work. The Sunreach is shown above with extension frame and extended bridle for orchard work. Also available without extensions, for use in vineyards. Galvanised fruit-shield for citrus orchards can be supplied.



Unexcelled for Killing Weeds and Preserving Moisture

A new cultivator with 7, 9, 11 or 13 tynes, for orchard or vineyard work. Spring or rigid tynes. Pole and swings, or forecarriage. Heavy pressure can be placed upon the sections by means of the C-Spring. One lever raises and lowers both sections.

Ask your local agents for full details.

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Massey Harris New Model **Orchard Plough**

With Movable Handles and ample draught range, both ver-tical and horizontal. Splendid for orchard, vineyard and field work. Has 21 in clearance at throat. Mouldboard, 22 in. Share, 6 in. or 8 in.



Sunshine Power Spraying Plant

A reliable outfit with ample pressure for modern orchard, vineyard and

for modern orchard, vineyard and row crop spraying.
Comprises the tested and reliable Sundial 2 h.p. Petrol Engine, connected by gear drive to a pump featuring porcelain-lined cylinder, extra large air chamber, accessible double-wear valves, strainer and Y-hose connection. Powerful enough to supply six spray rods simultaneously. Engine can be used for belt work. Mounted on a two-wheeled carriage which has strong frame of welded steel, and shafts for one horse.

norse.
Including underslung 100-gailon wooden vat, which has two-blade oscillating agitator. Large filleraccessible, splash-proof, with quick action opener and easily removed strainer. You fill at convenient height (2ff. 9in.), thus avoiding lifting strains.

For Use on Lorry or Dray

Same engine and pump as above, but mounted on strong frame of channel steel. Fifty gallon copper tank, with hose connection to pump. Or an ordinary barrel may be used in place of copper tank if desired.



The Australian Dried Fruits Industry

Record Production of 90,000 Tons of Dried Vine Fruits in 1938, of which 75,000 Tons were Exported

Warning Against Increased Plantings.

Need for Continuance of Imperial Preferences.

THE AUSTRALIAN DRIED FRUITS INDUSTRY has achieved considerable economic significance. The Minister for Commerce (Sir Earle Page) in submitting the fourteenth report of the Commonwealth Dried Fruits Export Control Board, states as follows: "I desire to draw attention to the great increase in the production during the season 1938 of Sultanas, Currants and Raisins.

"When it became necessary in 1924 to pass Commonwealth legislation dealing with the export of dried fruits from the Commonwealth, the production of dried fruits within Australia was in the vicinity of 32,500 tons per annum. During the season 1937 the tonnage of processed fruit approximated 71,250 tons. During the season 1938 the production has advanced to the record total of approximately 90,000 tons. Although an increase in consumption within the Commonwealth has been noted during recent years, and it is now estimated that the Australian consumption will amount to 15,000 tons per annum, it is self evident that a very large proportion of the tonnage produced in the Commonwealth must be shipped to oversea markets.

"In 1937 some 54,000 tons were exported and during the present season the quantity exported must be about 75,000 tons.

"In the arrangements for the disposal of the export surplus during the past year, the work of the Board has been conspicuously successful, and in face of the problem attaching to the marketing of the larger crop of 1938 I am assurred that the system of organisation will be a material factor in resisting the collapse of prices and indiscriminate competition.

"The Board continues to work with the confidence not only of the Government but also of the many thousands of producers constituting the settlements in the Murray Valley as well as of the other dried fruit producing areas of New South Wales, South Australia and Western Australia."

Personnel of the Board.

The personnel of the Board is as follows:-

Elected Members: Messrs. H. D. Howie (S. Aust.), A. Yeates, O.B.E. (W.A.), L. McLeod (N.S.W.), A. L. Johnstone and Peter Malloch (Vic.).

Nominated Members: William C. F. Thomas, C.B.E. (Chairman), J. Bruce Murdoch, Alex. F. Bell, C.M.G.

Production and Exports.

In 1925 the production of dried fruits in the Commonwealth was 37,217 tons (2,240 lbs.), of which 24,528 tons were exported. Production yaried, but was generally on the up grade, with the peak at 77,832 tons in 1933, of which 65,727 tons were exported.

Production and exports for the last 3 years are as

70770 11	D				
				Production.	Export.
Year.				Tons.	Tons.
1936 -		100 B		. 62,942	46,853
				. 71,219	54,023
1938				90.000	75,000

Of the exports, up to September, 1938, 66,577 tons had already been shipped to the following principal destinations:—

Great Britain .	es Gregoria and an are	 50,444
Canada	les de la mercia de la comoción de l	12,419
Other Countries		537

66,577

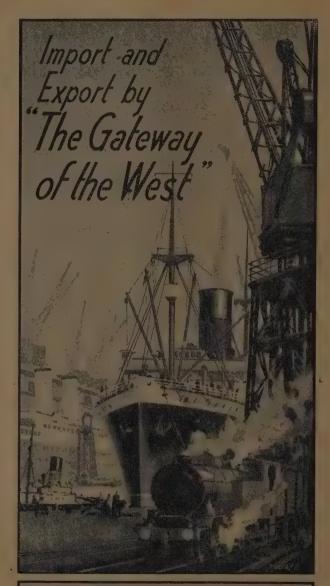
These figures can be accepted as typical of the general trend of exports, from which it will be noted that Great Britain is by far the most important market for Australian dried fruits.

The importation of dried fruits (in tons) from all sources into Great Britain for the last three recorded years are:—

						Kaisins.	Currants	 Total.
1935	1		S		Ċ.	 71,394	57,452	128,846
1936	11			 		 71,724	52,843	124,567
1937	1		1	 	į.	 68,950	52,820	121,770
0.0	43	£		 4%	. :	A 24-		

Of the foregoing, the imports of Australian dried fruits into Great Britain were:—

	Ivaisins.	Currants.	Total.		
	Tons. %	Tons. %	Tons. %		
1935	17,751 (24.9)	12,959 (22.9)	30,710 (24.0)		
1936	21,474 (29.9)	4,574 (8.7)	26,048 (20.9)		
1937	21,260 (30.8)	10,199 (19.3)	31,459 (25.8)		



Me PORT of LIVERPOOL

Liverpool serves an area comprising many Millions located in the Midlands and the North.

Fruit Auctions are held in Liverpool thrise weekly — attended by hundreds of buyers and distributors.

Facilities for handling, storage and delivery are unrivalled, and by consigning produce for consumption in the Midlands and the North direct to Liverpool, considerable savings in time and expense are assured.

Prices realised for Fruit are equal to the highest obtained in the United Kingdom.

There is extensive scope for the satisfactory disposal of Dried and Canned Fruit.

H. W. RICHARDS

Australian Representative,

Mersey Docks & Harbour Board, Liverpool.

Kyle House Macquarie Place Sydney

AUSTRALIAN DRIED FRUITS INDUSTRY—(Continued).

Realisations in Great Britain. Sultanas. Currants. Lexias. Tons. Av. Price. Tons. Av. Price. Tons. Av. Price. £ s d. 4,375 30 5 3 1936 19,200 42 17 8 2,309 40 8 10 19,775 44 5 8 10,175 29 15 9 1,524 45 18 0 1938 21,654 1,438 48 5 0 10,407 27 6 9 38 18 7 (1938 to September 30.)

Exports of dried vine fruits to Canada in 1937 were 17,133 tons, being an increase of just over 1,000 tons on the exports of 1936. Exports to N.Z. also showed an increase from 3,994 tons in 1936 to 4,533 tons in 1937—a gratifying increase on any figures since the inception of the Board.

Commenting on the position generally, the Control Board report states:-

Production (1938).

The outstanding feature of the year was the production of a record harvest due to the favorable conditions in fruit-growing areas in Victoria, S. Aust., N.S.W. and W.A.

It is estimated that the season's pack will slightly exceed 90,000 tons of processed fruit. Having regard to the fact that the largest crop previously obtained was 77,832 tons in the year 1933, it will be observed that the 1938 harvest exceeded by over 12,000 tons any previous figures.

Apart from the favorable climatic conditions, the average increased tonnage per acre may be attributed also to the beneficial results of the extensive drainage work in the Mildura areas.

Assuming that the success attaching this year to the drainage of large and well established areas is supported by the experience of succeeding years, it is well that it should be realised that on existing areas under vines Australia may produce 100,000 tons of dried fruit per annum in the course of a few years.

In the light of this opinion, the Board view with apprehension the discussion in Australia of projects designed to produce additional quantities of dried fruits. Should these

projects be brought into operation, it is well to remember that the consumption of dried fruits in Australia is approximately 15,000 tons per annum, and while this year it has become necessary to export 75,000 tons of fruit, favorable conditions obtaining over areas now planted would result in the Board having to face the export of from 75,000 to 85,000 tons per annum.

The requirements of Canada and N.Z. are approximately 17,500 tons and 4,500 tons respectively under the most favorable circumstances, thereby leaving for export to Great Britain Australian dried fruits to the extent of from 55,000 to 65,000 tons.

In broad outline the requirements of Great Britain are 125,000 tons of Raisins and Currants, of which approximately 75,000 tons represent Raisins and 50,000 tons Currants. As in Australia, the production of Raisins far exceeds that of Currants, it is obvious that the Board may have to consider the export to Great Britain of 50,000 tons of Raisins per annum or approximately two-thirds of the demand in Great Britain for that fruit.

Nor should it be overlooked that the production of Raisins is attaining substantial figures in South Africa, which Dominion enjoys the same preferences in the British and Canadian markets.

In view of the whole situation, the Board repeats its definite warning that increased production in Australia should not be countenanced unless and until there is a material change in the world conditions and it becomes possible to export to other than the markets of Great Britain, Canada and N.Z.

The present preferential admission of Australian dried fruits to the British and Dominion markets is the basic cause underlying any prosperity enjoyed by the industry Over-production would be disastrous, but equally so would be any variation in the preferential treatment of Australian dried fruits in the British Commonwealth of Nations.

It should be frankly recognised that if existing preferences are not continued in Empire markets there will be a radical alteration in the economics of the industry.

It is gratifying, however, to know that at the date of this report real progress had been made in the task of disposing of the record crop of the 1938 season.

Imperial Preference.

The Australian consumption may be taken as 15,000 tons per annum and as pointed out from three-quarters to five-sixths of the total production is shipped from the Commonwealth.

The disposal of this large quantity is practically confined to Great Britain, Canada and N.Z.

The duties on foreign grown fruit in the Motherland, in

Canada and N.Z., are as follows:—
Great Britain: Raisins (Sultanas and Lexias), 10/6 per cwt.; Currants, 2/- per cwt.

Canada: Raisins and Currants, 4 cents per lb..

New Zealand: Raisins, 1d. per lb.; Currants, no duty. Any change in the fiscal policies of the British and Dominion Governments would have a drastic effect on the values of Australian dried fruits exported from the Commonwealth.

The following figures are quoted to show the average



A Heavy Crop of Grapes.

annual world production of dried vine fruits during the five yearly period 1933-1937:—

Raisins.

itaisms—	
	Tons of
	2,240 16.
U.S.A	178,930
Turkey	60,433
Greece	30,753
Turkey Greece	52,517
Other Countries	92,000
Total	414,633
Currants—	
Greece	127,030
Australia	17.181
Other Countries	
Total: 22 23 25 15.	145,011
Grand Total	559,644

Publicity.

The book entitled "Water into Gold" is a descriptive record of the foundation and growth of the dried fruits industry in Australia and was issued on the occasion of the Jubilee of the establishment of the industry.

The Board made a substantial contribution to the cost of this work and it is noted with pleasure that "Water into Gold" has proved one of the most successful methods of propaganda in support of the dried fruit industry, having had a wide circulation in Great Britain, Canada, N.Z., and other British countries.

As customary, the Board has continued to contribute to the Australian Joint Trade Publicity Scheme operating in Great Britain under an honorary committee established in connection with the Department of Commerce and co-ordinating the expenditure of the Australian Government with the contributions of important primary bodies such as the Dairy Produce Board, the Canned Fruits Board, the Apple and Pear Council, and other organisations.

This scheme, which was established early in 1926 has proved most efficient and under the direction of Mr. A. E. Hyland has fully justified the annual expenditure of considerable sums.

Special reference should be made to the services rendered over a long period by Mr. L. R. Macgregor, C.B.E., Australian Trade Commissioner in Canada, and who has recently been appointed Australian Government Trade Commissioner in U.S.A. Mr. Macgregor continues to represent the Australian Government in Canada, and the Board gratefully acknowledges his special interest in this industry.

Research.

As in former years the Board has co-operated with the Council for Scientific and Industrial Research by contributing to the expenses of investigations into problems affecting the industry in the Commonwealth, and the Board gratefully acknowledges the work done and advice offered by the scientific experts of the Council. It is hoped to continue this important work and particularly in the smaller fruit producing districts in Victoria and S.A., where problems of drainage and treatment of soil are of paramount importance.

Appreciative reference might be made to the efforts of the general body of producers, many hundreds of whom

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SAVE TIME AND MONEY ON EVERY OPERATION WITH



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MELBOURNE, C.1.
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are continually studying on their own blocks the application of scientific methods all aimed at the production of high grade quality. In this they have had the enthusiastic co-operation of the packing houses in each State.

Finance.

The rates of levy recommended by the Board in terms of the Dried Fruits Export Charges Act and subsequently prescribed by Statutory Rule for the season 1938 were as

On Sultanas and Lexias, 9d. per cwt. = .0804d. per lb.;

on Currants, 6d. per cwt. = .0536d. per lb.

At July 1, 1937, the balance carried forward from the operations of earlier years was £3,517/13/3. During the year ended June 30, 1938, income was collected amounting to £44,484/7/9. Expenditure for the year was £28,975/0/10 and the excess of income over expenditure was £15,509/6/11.

The principal items of expenditure were as follow:-Administrative expenses in Australia 3,560 11 7 Administrative expenses in Great Britain . . Contributions to the Commonwealth Government in respect to the operations of the

Australian Trade Commissioner in Canada and moneys expended in the development of

on dried fruit exported from the Commonwealth.

General.

The Board records its thanks to the staff at Melbourne and London, and in particular to the Chairman of the London Agency of the Board (Mr. Frank L. McDougall, C.M.G.).

The officers of the Departments of Commerce and of Customs have continued to facilitate the operations of the Board in every way. Their assistance is much appre-

For and on behalf of the Board,

W. C. F. THOMAS, Chairman.

Commonwealth Dried Fruits Control Board (Head Office, 100 Queen-street, Melbourne, C.1.): Secretary, R. A. Marx; Economic Adviser, E. J. Mulvany.

London Agency of the Board (Regis House, King William-street, London, E.C.4): Frank L. McDougall, C.M.G., Chairman of the Agency; A. E. Gough, O.B.E, Member; J. J. S. Scouler, Executive Member, and Secretary; Technical Officer, W. P. Caro.

The Various Boards.

The Commonwealth Dried Fruits Control Board works in co-operation with Boards in four States, the personnel of which is:-

Commonwealth.—Chairman, W. C. F. Thomas, C.B.E.; Secretary, R. A. Marx, 100 Queen-street, Melbourne.

Victoria.—Chairman, W. Parker Moloney; Secretary, W. Cremor, 118 Queen-street, Melbourne.

New South Wales.—Chairman, G. J. Evatt; Secretary, G. A. Try.

South Australia.—Chairman, G. A. W. Pope; Secretary, W. N. Twiss.

Western Australia.—Chairman, J. N. Cox; Secretary, E. H. Rosman.

In addition, the Australian Dried Fruits Association represents growers in all producing States. Chairman, H. D. Howie; Secretary, W. N. Sumner, 450 Collins-street, Melbourne.



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Our Products Include:

JAMS All Varieties

TOMATO PRODUCTS

Preserved Tomatoes
Tomato Sauce
CANNED FRUITS
All Varieties

Specialties:

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Canned Asparagus Canned Spaghetti Jams . . . Preserves Sauces . .

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Canned Fruit and Jam Industries

Activities of the Fruit Industry Sugar Concession Committee

IN 1932 the Fruit Industry Sugar Concession Committee was instituted as part of the Sugar Agreement Act. Its principal purpose was to safeguard the interests of fruitgrowers, fruit canners and jam manufacturers, who feared that their interests would be adversely affected by the tariff protection afforded to the cane sugar industry of Queensland.

The Queensland sugar industry finances the Committee to the extent of £216,000 per annum. In the year ended August 31, 1938, a special contribution of £17,000 was made by the Queensland Sugar Board in connection with jam exports. The whole of the expenditure, apart from administrative and miscellaneous expenses, consisted of rebates to manufacturers of canned fruits, jams, jellies and pulp for domestic and export markets.

The only other item of expenditure was a grant of £500 to aid scientific research in the Pineapple industry.

The financial statement for 1937-38 shows that in this season export assistance to berry pulp amounted to £2,256, which represented a big jump from £705 in the preceding year. For canned Apricots, Peaches and Pears in the same period the rebate was £19,184. Canned Pineapples took £619, and jams and fruit jellies £7,317. The really large items of expenditure were £74,613 for domestic sugar rebate and £100,320 for export sugar rebate. New Zealand sugar rebate absorbed £2,050.

The report points out that although the domestic sugar rebate shows a gradual increase, special export assistance, disbursements and export sugar rebate show marked increases. It is stated that the amount available for all forms of export assistance in 1939 will be less than £71,000, consequently growers and canners will not be able to expect the same measure of benefits as in previous years.

Raspberries.

Prior to the 1937-38 season there were heavy unsold stocks of Raspberry pulp, and manufacturers were unable to accept all the balance of what could not be sold fresh. The Federal Government declined to grant the requested emergency bounty of £5,000. It was noted that, despite the shrinkage in exporting berry pulps (owing to in-

creased production in U.K.), the Tasmanian acreage of Raspberries had increased by 19 per cent., and for all berry fruits by 25 per cent.

However, adverse weather conditions in Britain destroyed the berry crops and the Tasmanian pulps were cleared at good prices.

A warning is issued against plantings to increase production beyond normal requirements. The Committee notes with pleasure that the Tasmanian Government is providing legislation to control production and marketing.

Peaches, Apricots, Pears.

The minimum prices for Cling Peaches in 1938 (£11 clear centre and £10 others) were 5/- per ton more than in the previous year, Bartlett Pears were £10 per ton, Keiffers £8, both being an advance of £2 per ton on 1937 prices: there had been excellent clearance of canned Peaches, Pears and Apricots in 1937.

The price position for fresh fruit is determined by the carry over stocks and crop conditions.

With a large carry over of stocks of canned fruits and bountiful production, the fixing of a high price for fresh fruit would mean that canneries would purchase less fruit. In this regard the money available from the Committee for special export assitance is necessary in most cases to bridge the gap between canners' costs and export realisations. If the processed article is high in price. the committee's contribution for export assistance obviously will only be sufficient to recoup the losses of canners on a smaller quantity of canned fruit than it would be if the cost of the canned fruit were lower, due to cheaper fresh fruit or other savings in processing expenses. It is probable that in view of the very large carry over of 250,000 cases of Peaches and the prospect of reduced values in U.K. (which may apply to Apricots and Pears also) it will be necessary to reduce the minimum prices paid last year to growers.

As a result of special efforts, the record pack of canned Apricots, Peaches and Pears (3,030,928 cases each containing 2 dozen 30-oz. cans) was accompanied by exceptional sales of Pears and Apricots overseas, and the carry

over of Apricots and Pears will be negligible. The exports of all three fruits constitute a record, which will probably have reached 1,700,000 cases by the end of 1938. This is 50,000 cases more than the previous record. The strong competition of Californian fruit was responsible mainly for the big carry over of Australian Peaches, and was a decided factor affecting prospects for 1939.

Jams-Stone Variety.

Owing to the heavy carry over of stocks of Plum Jam and pulp from the previous year, the factory demand during the 1938 season was insufficient to absorb the stock. However, a request from some Victorian districts for a reduction in the price of Plums was not acceded to, as it was considered that no price reduction acceptable to growers would be large enough to enable the retail price of Plum jam to be reduced sufficiently to stimulate consumption, and some manufacturers had already purchased stock at the original price.

chased stock at the original price.

As a result of an investigation into procedure adopted in the purchasing of factory supplies on the fresh fruit market, the Committee made a slight modification of the conditions, permitting manufacturers to purchase from agents and make payment direct to them, in quantities not exceeding ten bushel cases. Because of the better financial results obtained by growers, the Fruitgrowers' Federation of N.S.W. agreed to co-operate with Sydney manufacturers in an endeavour to make more direct sales between growers and factories,

Pineapples.

Owing to the bright outlook, 1938 season's minimum factory prices were £9/6/8 per ton "tops off" for fruit of 4 in. diameter and over, and 3/- per case "tops on" for "Smalls."

As a supplement to the £8,000 to assist exports of canned Pineapples and at the growers' request, the Committee authorised the C.O.D. to withhold £1 per ton from the growers, any portion not used for the purpose intended to be returned at the end of the year. In addition, a levy of 10/- per ton was deducted from the prescribed minimum prices for the purpose of meeting the growers' purchase of a half-interest in the State cannery. Later on, an additional export reserve of 16/8 per ton was arranged, 6/8 of which would be available to canners, if necessary, as compensation for Winter crop Pineapples affected by "Black Heart."

However, by June, 1938, the postion had become very serious. Export could not absorb the surplus Pineapples occasioned by the abnormally heavy 1938 Summer crop followed by an exceedingly large Winter crop. A conference between the Queensland Committee of Direction and canners decided that prices be reduced to stimulate demand and recommended a reduction of £2 per ton in the factory price of fresh Pineapples ex the 1938 Winter crop. Although it is understood beneficial results have been obtained, it is too early to estimate the probable effect on 1939 prices.

The industry's efforts are greatly appreciated, voluntary levies amounting to approximately \$20,000.

Sugar Rebate.

The domestic sugar rebate amounted to £74,613 (N.S.W. £18,329, Victoria £33,828, Tasmania £8,906, Queensland £7,575, S. Aust. £5,325, and W.A. £649). The export sugar rebate totalled £102,371, Victoria receiving £67,063, N.S.W. £13,136, Tasmania £17,665, Queensland £2,530, and S. Aust. £1,975.

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CANNED FRUIT AND JAM INDUSTRIES—(Continued).

Special Export Assistance.

THE AMOUNT ACTUALLY EXPENDED on all forms of special export assistance during the year was £64,021, including payments on products of past seasons as well as on current season's goods. Payments on 1938 goods are still incomplete. Distribution was as follows:—New South Wales, £7,017; Victoria, £46,648; South Australia, £2,853; Queensland, £669; Western Australia £1,618; Tasmania, £6,831.

In 1938 the special export assistance on canned Apricots, Peaches and Pears was £48,000. This was considerably less than previous allocations, due to the large expansion of production and exports of fruit products in the past two years and the consequent increase of domestic and export sugar rebate payments. It was decided to grant a bounty only on exports to U.K. Part of this has already been paid.

The report emphasises the Committee's warning that the statistical position in regard to Peaches is weak. Carry over stocks of this fruit will probably be 250,000 cases, or one-third of last year's exports. A bountiful season in 1939 would create grave problems and the Committee especially as production costs will show a tendency to rise and the Californian industry is now operating under very distressed conditions as to excess stocks of canned fruits and unprecedented low prices for fresh fruit. The position in subsequent years may be even more difficult. The peak of Australian production has not yet been reached, as there are substantial areas of orchard that will come into bearing during the next three years. The ability of canners to handle increased quantities of fresh fruit is almost entirely dependent on those overseas markets which hold prospects for trade expansion being kept open to Australian fruits.

Of the 1938 canned Apricot, Peach and Pear crop, 2,000,000 cases (or nearly 70 per cent. of the output) should have been exported to keep the Australian market clear of surplus stocks. The U.K. market absorbs nearly 90 per cent. of export. The price level there is a vital factor to canners in determining the quantities they can afford to purchase from growers, and also to the Committee as to the prices it can safely fix for such fruit.

New Plantings Opposed.

The report points out that (1) for several years there has been over-production of canned Apricots and Peaches in America, with a resultant heavy accumulation of stocks; (2) that this surplus fruit has depressed to unpayable levels the prices paid to growers for fresh fruit; (3) that America consumes 85 per cent. of her own production, leaving 15 per cent. which may be exported and sold at far below cost of production. Consequently it is becoming increasingly difficult for Australian exporters to compete with U.S.A., and at the same time pay reasonably remunerative prices to growers. Actual comparative figures of the prices paid to growers in the two countries show vividly what the position is. Californian growers are being paid the Australian equivalent of £5/17/10 per long ton for Apricots, £2/4/2 for Peaches, and £5/3/1 for Pears. The Australian prices for the respective fruits were £12, £10 to £11, and £10. Competition in the export market under such conditions, even after allowing for tariff preference, is obviously impossible. The report concludes its comments on this position with a definite warning, as follows:

1938 Record Pack of Canned Fruits

In 1938 Australia's pack of canned fruits reached a record total of 3,030,928 cases, each containing two dozen 30-oz. cans. Exports were 1,786,056 cases—an all time record.

"There is a tendency for orchard production in Australia to outstrip the capacity of canners to exploit and develop new markets. Present-day conditions in the American industry, involving unremunerative prices to growers, over-production by canners, and partial financial aid by Governments, can inspire no great confidence for much further expansion of Australia's export trade with Great Britain in the near future. Growers would be well advised to study this position most carefully before embarking on any expansion of their existing orchards."

Pineapples.

Record Summer and Winter crops of Pineapples in 1938 season were due in considerable measure to the observance by growers of improved methods of cultivation, fertilising and disease control resulting from scientific investigations advocated and assisted by the Committee. A voluntary agreement between growers and canners regarding reduction of prices paid for fruit assisted in relieving a very difficult position caused partly by price-cutting competitions from Hawaii and partly by uncertainty regarding the fate of Imperial preference.

Warning Not Heeded.

"It is evident," says the report, "that substantial new plantings in Queensland about two years ago were quite unjustified by reliable or accurate knowledge of the absorptive capacity of overseas markets for Australian canned fruits at remunerative prices. This Committee and the Australian Canned Fruits Board issued public warnings in this regard when the planting campaign was announced, and Pineapple authorities did so six months before planting commenced, but with apparently no effect on the promoters of the campaign."

The Committee recommends, as sound policy for the future, provision for still better average yields per acre so that growers may obtain at least as good a financial return per acre as at present from lower prices per ton. This would reduce production costs of canned Pineapples, thus strengthening their position in export markets, and would stimulate Australian consumption of fresh and canned Pineapples. Such a policy would, of course, eliminate Pineapple farms that do not give reasonably high yields per acre. The only alternative to this policy is the ultimate loss of most of the export trade, which would eliminate more farms than a programme of high efficiency in production.

Research and Efficiency.

Referring to the value of scientific research, the Committee states that it has consistently and frequently advocated this method of strengthening the weaknesses in the industry. Many growers, it is stated, are now

securing much better yields and more reliable production by this means, and it is not unlikely that, within a short period, Pineapples will be produced in Queensland at not more than two-thirds of recent costs. In this way, it is claimed, lies the chief hope of the Pineapple industry emerging successfully from its present difficulties.

A precisely similar policy reduced the production costs of Australian sugar during nine years by from 20 to 25 per cent., enabling a reduction of 12 per cent. in the Australian price and a doubling of exports. For the entire 37 years since Federation the sugar industry has had a separate experimental bureau. Nothing so compre-

hensive had been attempted for canning fruits, although there was great scope for useful research. An orchard census was also very necessary. The report concludes:—

"Nothing is so urgently needed in the canning fruits industry as a comprehensive, large-scale, co-ordinated attack on all factors responsible for keeping Australian average yields so much below those of our chief competitor, California. Probably Australia will need to spend money on the ablest personnel, experimental orchards, research laboratories and equipment in something like the same degree that has occurred in California, before the maximum results can be expected. The effort, however, would be worth while."

Canned Fruits Board

CONTINUED EXPANSION OF THE CANNING INDUSTRY.

THE STEADY, CONTINUOUS DEVELOPMENT in the export of canned fruit is one of the features in the twelfth annual report of the Australian Canned Fruits Board. This body was constituted in 1925, and in its first year the export trade amounted to 295,663 cases. The expansion to an export of 1,786,056 cases in the current year is a remarkable achievement. In the same period the domestic consumption of canned Apricots, Peaches and Pears increased from 443,998 cases in 1932 to 963,150 cases in 1937—more than double.

Export of Canned Fruit.

In the calendar year January-December, 1937, the export of canned Peaches, Pears, Apricots, Pineapples and fruit salad was 1,705,275 cases.

The export figures for eleven months, January-November, 1938 inclusive, are as follows:

	Aprı-			Fruit-	Pine-	
Country.	cots.	Peaches.	Pears.	Salad.	apples	. Total.
	Cases.	Cases.	Cases.	Cases.	Cases.	Cases.
U.K	176,918	786,708	503,123	255	25,082	1,492,086
N.Z	31,566	81,115	3,606		1,966	118,283
Canada	. 9,209	32,662	2,948	6,973	36,091	87,883
East	2,875	7,699	5,299	1,506	4	17,383
Misc	907	2,502	2,285	179	212	6,085

Total . . 221,475 910,686 517,261 8,913 63,385 1,721,720

Allowing for the December, 1938, figures, the total number of cases exported during the calendar year 1938 was 1,786.056.

These results, of course, have not been obtained easily. They are the reward of untiring work and marked business ability in the handling of many and difficult problems arising from year to year.

The Board consists of one representative of the Commonwealth Government (who is Chairman), and representatives of fruitgrowers, State-controlled canneries, cooperative canneries, and privately owned canneries. It also has a representative in London, and a Secretary in London as well as in Melbourne.

The year 1938 saw all records broken for production, domestic sales, and exports to United Kingdom and other markets.

Following a record crop in 1937, special efforts were made to quit the pack, and this was accomplished. Faced

with a still greater pack in 1938 season, the Board made good progress up to a point where sales received an unfortunate check. This was due to two factors, beyond the Board's control. One was that California held huge stocks, particularly of Peaches, which threatened the stability of prices; the other was the belief, current in the trade overseas, that the Anglo-American trade treaty would substantially reduce the tariff preference enjoyed by Australian canned fruits. Largely because of these disturbed trading conditions, a fairly substantial carry-over of Peaches into the 1939 season is anticipated.

The Board views with some concern the immediate prospects of the canned Peach pack because of the huge surplus of this fruit from California (estimated at six months' supply for the U.K. market) and the inevitable carry over of Australian Peaches into the 1939 season.

The good quality of the Australian pack this year has won the approval of overseas traders, but the Board urges canners and growers not to regard this better standard as the optimum. There is still need for continued effort to maintain and improve the reputation of our canned fruits.

Who Supplies Britain?

The British market absorbs about 88 per cent. of the world's exports of canned fruits. In the past year the percentage of Australian fruit supplying this market was well sustained, but the Board suggests that the absorptive capacity of this market has been reached.

Pineapples.

D EVELOPMENT IN THE PINEAPPLE INDUSTRY has been rapid in recent years. Last year drought conditions and wilt damage resulted in supplies being much smaller than was anticipated, and the total pack was 189,516 cases—the smallest since 1932.

In 1938 there was a very substantial increase of output, the Summer crop reaching a new high level of 192,526 cases. Unfortunately, the market in Great Britain proved difficult and unresponsive. Distributors were holding stocks of Singapore and Hawaaian goods, and Japanese (Formosan) supplies were also in evidence. In addition there was the uncertainty—as in the case of other canned Australian fruits—regarding the fate of Empire preference. These factors combined to make the season a particularly difficult one.

The Board views the prospects with some misgiving, pointing out that the only export markets of any con-

sequence open to Australian packers are Great Britain, New Zealand, and Canada. In the latter country, the growth of local canning has caused a contraction of the import trade. The British market is threatened with increasingly heavy supplies of cheap Formosan canned Pineapples. It is estimated that by 1942 Formosa will have an output of 2,000,000 cases, of which 800,000 cases will be available for export.

C UMMARISING THE POSITION of canned fruits industry, the Board points out that as both New Zealand and Canada are advancing to the stage of being self-supporting, the British market offers the widest scope for further trade. Australia now supplies 33 per cent. of the canned Apricots, Peaches and Pears for this market. The remainder of the trade is almost entirely in the hands of the U.S.A., and any material increase of Australia's trade must be made at the expense of

that country. The general conclusion, however, is that the American position is well held, and will present difficulties to any competitor endeavouring to secure it at the expense of the present holders.

Summarising the position, the view is taken that the Australian market has about reached the limit of its absorption capacity, and that the situation in export markets presents a clear warning against packing goods beyond the absorptive capacity of available markets.

> The kiss of the sun for pardon, The song of the birds for mirth; You are nearer to God's heart in a garden, Than anywhere else on earth.

> > -Dorothy Gurney.

Good nature is the beauty of the mind, and, like personal beauty, wins almost everything else.

Principal Fruit and Jam Manufacturers in Australia

New South Wales:

J. Ambrose Ltd., Princes Highway, Kogarah. L. Cowing, 554 Parramatta-road, Petersham. Fowlers Vacola Manufacturing Co. Ltd., Rosebery. Holbrooks (A/asia) Pty. Ltd., Danks-street, Waterloo. Hygienic Jam Co. Pty. Ltd., 23 Ivy-street, Darlington.

W. H. Johnson & Co. Ltd., Bruce-street, Waterloo H. Jones & Co. (Sydney) Pty. Ltd., Darlington, Sydney. Lackersteen & Co. Pty. Ltd., 2 Parramatta-road, Camper-

F. C. McMartin & Co., Dean-street, Enfield. Meadowsweet Jam Co., 11 May-street, Eastwood. P. Methven & Sons, Mt. Druitt.

Leeton Co-operative Cannery Ltd., Leeton. Nestle & Anglo Swiss Condensed Milk Co. (A/sia) Ltd.,

Walton-crescent, Abbotsford.

Pick-Me-Up Condiment Co. Ltd., Alice-street, Newtown. Rosella Preserving and Manfg. Co. Ltd., Morley-avenue, Rosebery.

Sherwood's Jams & Preserves, 6a Isabella-street, Bal-

Tillock & Co. Ltd., Kent and Liverpool streets, Sydney.

Victoria:

Ardmona Fruit Products Co-op. Co. Ltd., Mooroopna. Australasian Jam Co. Pty. Ltd., 1 Garden-street, South

Bendigo Preserving Co. Ltd., Garsed-street, Bendigo. W. A. Blake Pty. Ltd., 252-4 City-road, South Melbourne. Brookes Lemos Ltd., 69-79 Whiteman-street, South Melbourne.

D. Camm & Sons Pty. Ltd., Monbulk. R. G. Champ (Mrs.), "Banool," Wandin Yallock. Clegg & Kemp Pty. Ltd., 115 Stanley-street, West Mel-

S. Davis & Son Pty. Ltd., 87 Rupert-street, Collingwood. Fowler's Vacola Pty. Ltd., 253-259 Burwood-road, Haw-

Fruit Growers' Preserving Co. Pty. Ltd., 189a Victoriastreet, Ballarat.

W. H. Johnson Jams Pty. Ltd., 42 Meaden-street, South Melbourne.

Jones Miller & Co., Williamson-street, Bendigo. Kyabram Co-op. Fruit Preserving Co., Kyabram. H. M. Leggo & Co. Ltd., Victoria-crescent, Abbotsford. Francis Longmore & Co. Ltd., 617 Spencer-street, Melbourne.

MacRobertson Pty. Ltd., Argyle-street, Fitzroy. Mildura Co-operative Fruit Co. Ltd., Box 104, Mildura. Passila Passion Fruit Products Ltd., 40 Queen-street, Mel-

Rosella Preserving and Manfg. Co. Ltd., Cremorne Gardens, Richmond.

Shepparton Fruit Preserving Co. Ltd., Shepparton. Henry Williams & Sons Pty. Ltd., Heidelberg-road, Alph-

Queensland.

F. G. Butt & Sons, Murphy-road, Zillmere. P. Elms & Co. Pty. Ltd., Nott-street, South Brisbane. John Fischle & Sons Pty. Ltd., Bald Hills, Queensland. Mrs. K. M. Furlong, 157 Esplanade, Brisbane J. Hargreaves & Sons Pty. Ltd., Manly, Queensland. Summerland Preserving Co., May-street, Milton. Sumner's Preserving Co., Flower-street, Nundah. Tassell Products, Montague-road, Hill End, South Brisbane.

Victoria Cross Manfg. Co. Pty. Ltd., Woollongabba.

South Australia:

Blackwood Cold Stores Ltd., Blackwood. J. Brooker & Sons, Port-road, Croydon. F. Humphris & Sons Ltd., Carrington-street, Adelaide. Fred A. James Ltd., Victoria-square, Adelaide. H. Jones & Co. (Adelaide) Pty. Ltd., Keswick. Geo. McEwin & Son Ltd., 27 Grenfell-street, Adelaide. Queensland Canneries Pty. Ltd., Brisbane. Robson Jarvis & Co., Hectorville, Montacute-road. Rosella Preserving and Manfg. Co. Ltd., Kent Town. South Australian Fruitgrowers' Co-operative Society Ltd., Payneham-road St. Peters.

Western Australia:

Crystal Jam Co. Ltd.. Railway-parade, East Cannington. George A. McKim (Orchard Peel Co.), Edward-street, Gosnells.

Plaistowe & Co. Ltd., 155 Havelock-street, Leederville. H. Rayner & Sons, 90 Railway-parade, West Perth. Swan Brand Products, 567 Newcastle-street, Perth.

Tasmania:

H. Jones & Co. Pty. Ltd., Old Wharf, Hobart. Tasmanian Rosella Preserving Co. Ltd., Hobart. J G Turner Pty. Ltd, Morrison-street, Hobart. Port Huon Fruitgrowers' Co-op, Association Ltd., Daveystreet, Hobart,

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and

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will anticipate this . development by . providing increased

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The success of the 1938 Publicity Campaign for Apples and Pears has resulted in a decision by the Australian Apple and Pear Export Council to make still greater efforts to increase consumption during 1939. Individual fruitgrowers and their organisations can naturally assist in this progressive step by marketing fruit of the highest quality and making provision for spreading sales over a longer period. Extra cool storage space is an essential factor for the success of this campaign—glut periods must be avoided.

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- The capital value of an orchard with a cool store is greatly in excess of those without.
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- Running costs are low and no technical engineering skill is required to operate a cool store. Fully automatic equipment, if desired, where electric power is available.
- Increased returns for your fruit provide the means for paying principal and interest on your store.

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The Cool Storage of Fruit

With Special Reference to Picking Maturity and Storage Temperature

Apples, Pears, Plums, Peaches, Citrus and Grapes

(By G. B. Tindale, B.Agr.Sc., Cool Storage Research Officer, Victorian Department of Agriculture, and Dr. F. E. Huelin, B.Sc., Ph.D., Council for Scientific and Industrial Research.

DURING THE LAST FEW YEARS, as a result of experiments carried out by the Department of Agriculture and the Council for Scientific and Industrial Research working in co-operation at the Government Cool Stores, Melboure, a considerable amount of knowledge has been accumulated regarding the requirements of the varicus fruits insofar as picking maturity and storage temperatures are concerned.

Referring first to Apples, considerable attention has been given to the Jonathan variety which is so widely grown and stored in such large quantities in Victoria. Large losses have been experienced every year by growers on account of their Jonathans developing the disorders Soft Scald or Breakdown in cool storage.

It has been found that both of these disorders may be almost entirely eliminated by paying due regard to picking maturity and storage temperature.

If picked over-mature, in an effort to gain extra red blush in the Apple, the Jonathan is subject to early breakdown in storage.

For long storage it should be picked when the ground color is green-yellow irrespective of the amount of red blush then developed. Picked at the green-yellow stage of maturity the Jonathan combines good quality with reasonably long storage life. If picked earlier a longer storage life is obtainable, but quality is lacking.

It has been found that, if Jonathans are cool stored at too low a temperature, i.e. 32 deg. shortly after picking, they are then very subject to soft scald which makes its appearance about June-July. This may be avoided by storing Jonathans at 36 deg. until the end of April, 34 deg. until the end of May and 32 deg. thereafter. Several cool stores adopted this recommendation last year and each reported an almost complete absence of scald.

Varieties not subject to soft scald may be stored at 32 deg. continuously, for it is well known that the longest storage life is obtained by storing at the lowest possible temperature. Dessert Apples should be picked at the green-yellow stage of maturity, but culinary Apples should be picked while quite green. Large green culinary Apples have a surprisingly long storage life, whereas large yellow culinary Apples become mealy and break down very quickly in cool storage.

Pears are subject to various disorders which develop on removal from cool storage, but only when the particular variety of Pear has been overstored. The disorders may be mealiness with loss of flavor, internal breakdown, or skin scald.

Store Pears at 32 deg. F.

Pears should be picked for storage when fully grown, but still green (of a pale green rather than a dark green color) and should be promptly stored at 32 deg. Each variety has a very definite storage life and must not be stored beyond their "allotted span" otherwise the above disorders will develop.

The storage lives of the most important varieties at 32 deg. have been determined as follow:—

W.B.C. 3 months, Howell and Bosc 3½ months, Comice 4 months, Anjou and Packham 4½ months, Winter Cole and Josephine 5½ months and Winter Nelis 6 months.

Plums in cool storage are subject to various disorders such as mealiness with loss of flavor and discoloration of the flesh, especially around the stone. It has been found that these disorders develop if the Plums are stored too long at 32 deg., but they may be avoided if the Storage temperature be raised to 45 deg. after an initial storage at 32 deg. The period which Plums can withstand at 32 deg. without disorders developing depends on variety. One variety, the Cole's Golden Gage, can withstand up to 16 weeks at 32 deg. and hence is eminently suitable for export under present conditions. Most other European varieties can withstand but one month at 32 deg., and if the temperature be then raised to 45 deg., another month to a month and a half (storage) can be obtained, by which time Plums will have gradually ripened.

The Japanese Plums as a class cannot withstand 32 deg. as long as the European varieties, indeed for some varieties, such as the Wickson and Satsuma, the limit at 32 deg. is only a fortnight, and hence these varieties are not suited for export under present conditions where Plums are carried continuously at 32 deg.

Very immature Plums will withstand longer periods at 32 deg, than will more mature Plums, but as they fail to develop any Plum quality whatsoever after storage, the cool storage of very immature Plums is not recommended. They should be picked when fully grown but still quite firm.

Peaches have a shorter storage life than the above mentioned fruits. Only the late maturing varieties should be considered, varieties like Smith's, Catherine Anne, and Late Crawford having given the best results to date. These varieties store relatively well when picked in a fully-grown but firm condition, and promptly stored at 32 deg., a storage life of 5 to 6 weeks and sometimes more has been obtained with these varieties.

If stored beyond this period the Peaches fail to ripen on removal from store. With slight overstorage they become mealy, while with further overstorage they develop internal discoloration, especially around the stone, while the skin develops numerous slight cracks.

Citrus fruits store relatively well, but require considerably higher storage temperatures than that required for deciduous fruit, otherwise they will develop skin disorders such as spotting, pitting or skin discoloration, while in addition, the fruit itself becomes very bitter, quite losing its normal flavor.

A temperature of 42 deg. seems to be the most suitable for Navel and Valencia Oranges. When picked as they are approaching maturity both of these varieties will

store at the above temperature for a period up to three months. When picked at a later stage of maturity the storage life is considerably reduced.

Grapefruit require an even higher storage temperature. In order to avoid storage pitting it seems that a temperature as high as 50 deg. is required. At this temperature, however, mould attack is likely to become serious, hence the Grapefruit is not particularly suitable for long storage.

Grapes for storage should be picked when just ripe (unlike other fruits they do not ripen subsequently if

picked immature). They should be specially packed in granulated cork if intended for long storage and promptly stored at 32 deg.

The various varieties vary enormously in their keeping qualities. The Muscat varieties will not store much beyond one month, whereas the best keeping variety, the Ohanez, will store up to six months at 32 deg. The big problem in keeping Grapes in cool storage is the prevention of mould attack. Promising results have been obtained recently in this regard by treating the packing cork with certain chemicals such as sulphur and iodinc.

Australian and New Zealand Cool Stores with Case Capacities

VICTORIA.	
	acity in Case
*Govt. Cool Stores, Victoria Dock	190,000
Shepparton Cannery Cool Stores	140,000
Orchardists' Co-op., Doncaster East	134,000
Harcourt	80,000
Shepparton Fruitgrowers	60,000
Blackburn	55,700
Ringwood	50,223
Ardmona	53,000
Australasian Jam Co	50,000
West Doncaster	40,000
Burwood East	42,000
Wantirna	39,200
Tyabb	38,270
Hastings Cool Stores	34,000
Kyabram Preserving Co	63,000
Hurstbridge	32,000
East Doncaster	31,500
Mount Waverley Sennitt & Son Pty. Ltd	30,420
Sennitt & Son Ptv. Ltd	30,000
Red Hill	29,000
Somerville Cool Stores	22,000
Valley View Orchards, Pakenham Upper	24,000
Croydon Cool Stores	21,056
Angliss & Co. Pty. Ltd., W	20,000
Templestowe Cool Stores	
Box Hill Ice and Cold Storage Pty, Ltd.	20,000
Pyke, F. C.	20,000
Diamond Creek	17,800
J. Brunning & Sons, Somerville	17,500
Lawford, E., Doncaster	17,000
Graceburn Valley, Healesville	17,000
Maryborough	16,000
Pakenham	15,000
Portland	15,000
Narre Warren	15,000
Two Bays Nurseries & Orchard Pty. Ltd	15,000
Essendon Ice Works	14,000
Ireland, A. E., Doncaster	14,000
Tully, J. J., Doncaster	13,000
Lawford, V	12,500
Apted, Geo., Arthur's Creek	11,000
Johns, R., Queenstown	11,000
Richmond Ice Works	11,000
Dobson Bros., Ferntree Gully	10,000
Bendigo Fruitgrowers' Co-op. Association	10,000
Geelong	10,000
Fitzroy Ice Works	10,000

Heatherlea, Croydon	10,000
Elinora Orchards	10,000
Petty, Herb	10,000
Petty, F., Mitcham	14,000
Ireland, W., Mitcham	10,000
Brunswick	8,000
Australian Ice Works, Ballarat	8,000
Jenkins, Scoresby	7,000
Scott, D., Greensborough	7,000
Tynong (W. C. Thomas & Co.)	7,000
F. W. Cameron	7,000
Carpenter, J. D., Hastings	6,500
Burke Bros., Diamond Creek	6,500
Bunyip	6,118
Lechte Bros., Mt. Waverley	6,000
Robinson, T., Scoresby	6,000
Heinz Bros., Ballarat	5,000
Finger, F., Balwyn	5,000
Haysey, R. E., Narre Warren N.	5,000
Corbett, D. J., Doncaster	5,000
Muller, O., Queenstown	5,000
Jenkins, W. R., Doncaster	5,000
Bailey, J. W., Narre Warren	3,800
Shearer, O. J., Nutfield;	3,000
Mordialloc Ice Works	3,000
Moore, J. E., Panton Hill	2,500
Clark, T. J., Diamond Creek	2,500
French, Deepdene	2,500
Cobram (P. Rossiter, Citrus Fruit)	2,500
Cool Stores, J. Hanley	2,000
Smith, W. J., Panton Hill	2,000
Kent, Narre Warren	2,000
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*Despite the fire which occurred some time ago at the Victoria Dock Cool Stores, it is not generally known that space for 190,000 cases is available for use.

New South Wales.

Barrett, W. E., Orange	150,000
Rogers' Meat Company, Orange	100,000
Batlow Packing House, Batlow	65,000
Dark's Cold Stores Ltd., Newcastle	65,000-
Municipal Cold Storage Works, Sydney	50,000
N.S.W. Fresh Food & Ice Co. Ltd., Sydney	60,000
Orange Fruitgrowers' Cool Stores Ltd.,	,,,,,,
Orange	35,000

FRUIT WORLD ANNUAL.

Leeton Co-operative Cannery, Leeton 53,000	Stage Western Australia.
Sydney Cold Stores Ltd., Sydney 30,000	(Case Capacity Not Available.)
Market Cool Stores, Sydney 30,000	Westralian Farmers' Ltd Fremantle, Albany &
Griffith Producers' Co-op. Co. Ltd., Griffith 17,000	Bridgetown
Co-operative Cool Stores, Kentucky 16,000	Illawarra Orchard Company
Young Cool Stores Rural Co-op, Soc. Ltd.,	Mount Barker Cold Storage Co Mount Barker
Young	Western Ice Company Perth and Fremantle
Dimdore, A., Batlow (late Arnot) 11,000	Perth Ice Works Perth
Metropolitan Ice & Cold Storage Co., Sydney 10,000	Bantocks Ltd Subiaco
Hyland & Sons Pty. Ltd., David, Sydney . 15,000	W.A. Meat Export Co Robbs Jetty
Werrima Orchard Cool Stores, Wingello 8,000	Peters American Delicacy Co Perth
Wallace & Co., Wagga 5,000	Fremantle Cold Storage Co Fremantle
Albury District Rural Co-op. Soc., Fallon-	South Australia.
street, Nth Albury 5,700	Producers' Cold Stores Ltd., Adelaide
Jackes, R. A., Armidale	S.A. Cold Stores Ltd., Mile End 60,000
Ward, S. E., Kentucky 3,100	Metropolitan & Export Abattoirs Board,
Della Valle, F. J., Batlow 3,000	Gepp's Cross
Oldfield & Sons, W. E., Queanbeyan 25,000	Cudlee Creek Co-op. Society Ltd., Cudlee Creek
Freame, H., Kentucky	Creek
Westbury, F. J., Kentucky 2,000	Balhannah Cold Stores Ltd., Balhannah 43,867
Harris Bros., Little Hartley	Gumeracha Fruitgrowers' Co-op. Scty. Ltd. 35,000
Sim Bros., Brooklyn, via Capertee	Sturt Producers' Society Ltd., Blackwood 34,000
Yenda Producers' Co-op. Society Ltd., Yenda 1,000	Heyson, O., & Son, Adelaide 12,000
	Redden & Son, J., Verdun 8,000
Mort, D. R., Leeton 1,000	Redden & Son, J., Cudlee Creek 7,000 Mattiske, B. A., Angaston 7,000
Pearson, E., Chipping Norton	Norsworthy, P. G., Williamstown 3,500
Total	Kelsey, R., Balhannah
A number of cool stores are being increased in capacity,	Total 463,034
but they are not complete at time of writing.	

BUDGE Refrigeration Equipment For Cool Stores

Complete installations upon the direct expansion or air-circulation systems for Cool Stores of small or large capacity ranging from 500-case store as supplied to Mr. S. R. Mort, Leeton, N.S.W.; 1,000-case store for Mr. H. Archibald, Pozieres, Qld.; and 2,000-case store for Mr. H. McGuigan, Thulimbah, Qld.; up to 64,000-case store for Orange Fruitgrowers' Co-op. Cool Stores Ltd., N.S.W.; and 100,000-case store for the Port Huon Fruitgrowers' Assn. Ltd., Tasmania.

Tenders and specifications furnished without obligation.



JAMES BUDGE Pty. Limited McEvoy St. Tel.: L 5034 (2 lines). REFRIGERATION ENGINEERS

AGENTS:

QUEENSLAND: Henry Berry & Co. Pty. Ltd., Box 128-B, G.P.O., Brisbane.

SOUTH AUSTRALIA: Thos. J. Bromley, Engineer, Hurtle Square, Adelaide.

WESTERN AUSTRALIA:
H. A. Cartwright,
Engineer,
19 Coogee St., Mount Hawthorn.

re.

AUSTRALIAN & N.Z. COOL STORES—(Continued).

Tasmania.	
	.150,000
Port Huon Fruitgrowers' Association	120,000
Huonville Cool Stores	100,000
Huon Deep Water Cool Stores	50,000
Beauty Point Cool Stores	48,000
Cygnet Cool Stores	40,000
Moonah Cool Stores, Hobart	36,000
Bender & Co., Launceston	30,000 20,000
Lilydale Cool Stores	12,000
W. H. Calvert, Judbury	12,000
Walpole, Devonport	10,000
walpole, Devouport	
Total	628,000
New Zealand. Space	e utilised f
	Cool Storag
	Cases.
Radley & Co., City Markets, Auckland	10,000
Turners & Growers, Markets, Auckland	25,000
Westfield Freezing Co., 53 Fort-street, Auck-	
land	35,000
Auckland Farmers' Freezing Co	85,000
Auckland Farmers' Freezing Co., Southdown	20,000
Wattie's Cannery, King-street, Hastings	26,000
C. H. Slater Ltd., 86 Aubyn-street, Hastings	35,000
Ashcroft & Edwards, Miller-street, Hastings	25,000
Elite Bacon & Ice Co., Heretaunga-street,	99 500
Hastings Hastings at the Hastings	22,500 7,000
H. G. Aspey & Co., Hastings-street, Hastings	10,100
W. H. Sisson, York-street, Hastings G. H. Henderson, Havelock North	7,000
J. H. Milne, Havelock North	6,000
W A. Tate, Greytown	9,000
Maitland Cool Stores, Nelson	6,000
Frozen Products Ltd., 25-29 Tennyson-street,	
Wellington	35,000
Motueka Cool Stores, Motueka	40,000
Canterbury Orchardists' Co-op., 551 Colombo-	
street, Christchurch	20,000
Christchurch Fruit & Produce Co., Chch. Papanui Fruit & Storage Co., Ltd., 27 Hare-	. 8,000
Papanul Fruit & Storage Co., Ltd., 27 Hare-	. 52 000
wood-street, Christchurch	35,000
F. Sisson, Snr., 120 Sawyers Arms-road, Papanui, Christchurch	26,000
E. A. Sisson, 83 Sawyers Arms-road, Christ-	20,000
church	2,000
Wardell Bros., Christchurch	2,500
Crystal Ice Co., King Edward-road, Dunedin	
S	5,000
E. J. R. Milne, Pukahu, Havelock North	6,000
A. Frost, Havelock North	9,000
Hawera Cool Stores, Hawera	3,000
Radley & Co., Christchurch	9,000
J. Peel, Hastings	800
Webster Bros., New Plymouth W. J. McMiken, Silverdale Rural, Hamilton	2,300
E. French, Lyndhurst-road, Hastings	6,000 3,000
F. A. Mintoft, Thompson-road, Havelock	0,000
North	2,400
J. E. Hope, Twyford, Hastings	_12,000
G. C. McMurtry, Brightwater, Nelson	
McFarlane & Co. Ltd., 156 Lichfield-street.	
Christchurch	3,000

Alexandra Freezing Works, Alexandra	- 3,000
J. Crombie, Hastings	3,000
Gisborne Refrigerating Co., Gisborne	20,000
Harbour Board, Wellington	28,000
Co-op. Dairy Farmers' Freezing Co., Welling-	
ton /	80,000
Nelson Freezing Works, Stoke	40,000
N.Z. Farmers' Co-op. Assn. Ltd., Christchurch	3,500
J. Hawkins, Westport	1,250
Tiki Bacon Co., Palmerston North	1,800
	
Total cool storage space utilised for the	
storage of fruit	661,150

TASMANIAN COOL STORE EXTENSIONS.

Sydney Firm Supplying Equipment.

The Huonville Cool Stores Ltd., Huonville (Tas.), were busy at the end of 1938 carrying out extensions to their cool stores by the addition of two new insulated rooms, each having a carrying capacity of 5,000 bushel cases.

The existing rooms are cooled by the air circulation system, but the new rooms are being arranged for direct expansion. The directors have entrusted James Budge Pty. Ltd., Alexandra, N.S.W., with the work of supplying and installing the expansion coils and other equipment. One of the firm's engineers, Mr. F. S. Allen, was sent across to take charge of the installation.

Further extensions are to be made to the premises of the Orange (N.S.W.) Fruitgrowers' Cool Stores Ltd., Orange. Two rooms, with a total capacity of approximately 24,000 cases, have already been built, and the company's engineer is to instal direct expansion coils and other equipment, which have been supplied by James Budge Pty. Ltd.

NEWS IN BRIEF.

New South Wales imported a total of 1,532,628 cases of fruits, other than Pineapples and Tomatoes, during the year ended June 30, 1938. The importations consisted principally of Apples from Tasmania. From the same State 1,126,701 bags of Potatoes were imported into New South Wales. During the same period, 750,688 half-cases of Tomatoes were imported from Queensland and Victoria.

Exports of Potatoes from New South Wales totalled 79,137 bags for the year ended June 30, 1938. Queensland took 79,093 bags of this fotal.

Queensland Pineapple growers, by voluntary levy, contributed £20,000 in the 1938 season toward improving the marketing position of their industry.

The Fruit Industry Sugar Concessions Committee's annual report definitely expresses the opinion that there should be no new plantings of Pineapples in Australia, and that the immediate prospects for canned Peaches are not encouraging.

The world's acreage of Apple orchards exceeds seven million acres, containing about 450 million trees with an average annual production of between 500 and 600 million bushels.



Annual Production Between 500 and 600 Million Bushels.

A PPLES ARE GROWN in every country in the temperate zone. Although computations of world production must be of doubtful validity and of limited significance, a rough estimate would suggest that the area devoted to Apple growing probably exceeds 7,000,000 acres, that the trees thereon number about 450 million, and that the average annual production of Apples ranges from 500 to 600 million bushels. Production in Empire countries probably accounts for less than 10 per cent. of the total output.

About 100 million trees are in the United States, 77 million in Germany, 68 million in France, and from 50 to 60 millions in the Soviet Union. In no other country does the number of trees exceed 20 million. In the United Kingdom, Canada, Australia, Czechoslovakia and Italy the estimated totals range from 10 to 15 million. In both Poland and Roumania the number is about 10 million. Of the remaining Apple-growing countries the most important are Switzerland, Austria, Yugoslavia, Spain,

Japan, Sweden, Belgium and the Netherlands. This alone gives some idea of the extent of the industry.

Although there has been a substantial decline in the world's acreage under Apples since pre-war days, production has been maintained around the same level by better growing methods and by the elimination of much waste through cold storage, etc.

To most countries, international trade in Apples is of no great significance. The leading producer, the United States, is the leading exporter. Second comes Canada, and third Australia. Then, but at a long interval, come France, Italy, New Zealand, Yugoslavia, Switzerland and Roumania. None of the European countries enter to any great extent into export markets; several, including France, where 90 per cent. of the crop is for cider, balance their export of cider with importations of dessert and eating Apples. These countries have no organised export trade in any way comparable to that of the United States or the Dominions.

AVERAGE ANNUAL PRODUCTION OF APPLES IN THE PRINCIPAL PRODUCING COUNTRIES.

していき りた 対しめ ここに 物でも もいに	Thousand Bushels	(a).		
Country.				
Empire.	1919-23.	1924-28.	1929-33.	1934-37.
United Kingdom	12,500 (e)	. 4 14,565	13,126	1 18,000
Canada (c)	11,816	9,465	13,014	14,084
Australia 12	5.976	7,479	8,546	10,096
new Zealand	LyL'#2 (L)	1,751	2,500(e)	2,880
South Africa	(b)	(b) a	·/ (b)	(b)
Foreign.				
United States	178,112	183,097	173,583	173,072
France (d)		139,400	125,500 -	167,300
Soviet Union	50,000(e)	60,300(g)	(b)	(b)
Germany	40,000 (e)	40,000(e)	45,000(e)	64,316
Poland	35,000 (e)	38,900(h) ··	23,200(k)	(b)
Switzerland	26,627	13,861	17,353	23,897
Roumania (e)		13,200	10,100	. 15,200
Italy		9,400(e)	13,339	15,184
Austria		13,045	7,727	12,355
Czechoslovakia		8,700(g)	11,115	8,990
Spain		8,400(n)	8,620	8,400
Yugoslavia		8,603	7,024	6,062
(a) All estimates, including those for the U		1921-23.		
and Canada (for which the bushel		1925-28.		
reckoned to be 46 lb. respectively)	converted to (h)	1926-28.		
bushels of 42 lb.	(k)	1929-31.		
(b) No estimate available.	(1)	1923.		
(c) Commercial crop.		1922.		
(d) Mainly cider fruit.	(n)	1928.		
(e) Rough approximation.				

Fruit Growers

Established 1892

Shippina

Consign

. J. COOPER Pty. Ltd.

Fruit Merchants · Importers and Exporters Licensed Farm Produce Agents

2 City Markets - - Quay Street, Sydney

Telegraphic Address: "FRUIT," Sydney. Bankers: Bank of N.S.W., Bathurst St., Sydney.

Prompt Attention -Efficient Service - Highest Returns

Phone: MA 2625.

Cables-Monro, London,

Codes - A.B.C. 5th Edition and Bentley's

ESTABLISHED 1862

The Most Important Fruit-Distributing Organisation in the World Covent Garden Market, London and Smithfield Market, Manchester

Other Branches: Birmingham, Glasgow, Worthing, Spalding and Hull.

Sales on Commission by Private Treaty only. We do not purchase. Over sixty years' of Fruit Distribution.

Our Sale Rooms are the largest and most up-to-date in England; consignments are therefore displayed to the best advantage, consequently, our returns are the best.

. We have specialised in the Sale of Australian Apples and Pears by expert salesmen for many years past, and we have the largest and best customers in Great Britain amongst our clients.

Bigger and better business is our objective. We make advances to cover cost of freight, etc.

DIRECTORS:

Major Edwin G. Monro, O.B.E. (Chairman), Geo. Monro, C.B.E., Bert J. Monro, Captain J. Stuart Monro, Alex. J. Monro, and C. Cole.

Chief Agent in Aust.--MAJOR H. DAKIN, V.D., Goldsbrough House, MACQUARIE PLACE, SYDNEY, N.S.W.

Victorian Representative . Esmond Russell Pty. Ltd., 395 Collins St., Melbourne. Southern Tasmanian Representative . W. H. Ikin & Son, Dunn Street, Hobart. Northern Tasmanian Representative . Bell & Gerrard, No. 200 Cimitiere St., Launceston, West Australian Representative . The Westralian Farmers Ltd., Perih.



Picturesque scenery is provided by orchards in addition to their utility value.

Illustration by courtesy of "Bank Notes" (Journal of Commonwealth Bank).

Exports from Australia and New Zealand in the years 1919-23 averaged little more than 1½ million bushels, or about 20 per cent. of the combined crop. In the years 1929-33 the average was about 5 million bushels, or nearly 45 per cent. of the crop. Since 1933, when exports reached a record total of over 6½ million bushels, seasonal shipments to the United Kingdom, which normally takes about 88 per cent. of exports, have been regulated by the Australian Apple and Pear Export Council in voluntary co-operation with the Fruit Export Control Board of New Zealand; nevertheless, total exports, in the four years 1934-37 were, on the average, heavier than in the preceding five years, and amounted to over 5½ million bushels, or again, about 45 per cent. of the crop. Roughly, four-fifths of the combined shipments come from Australia. Exports from South Africa have expanded notably in recent years, but as yet are not comparable with those of her sister Dominions.

The overwhelming importance of the United Kingdom market must be emphasised. It has of recent years taken over a third and occasionally as much as half of the world imports. Its capacity can hardly be expected to increase. Indeed, its average takings in the last four years were 2½ million bushels below those of the peak period 1929-33, and over 1½ million bushels less than those in 1924-28. The desirableness of regulating shipments to

this market has already been recognised by the Dominions.

In the United States since 1910, the number of trees under cultivation has declined steadily. In 1935 the total number was only about 100 millions, compared with 217 millions in 1910. The number of trees in bearing has dropped by 45 per cent. since 1920, from 151 millions to under 83 millions, and that of trees not in bearing by as much as 73 per cent., from nearly 66 millions to less than 18 millions. These reductions were necessary to compensate for the heavy over-planting that took place from 1905 onwards. Over-production brought low prices, and planted land had to be converted to other uses.

The table given on page 57 of this Annual is very interesting in this connection, revealing as it does the total quantity of Apples received into the United Kingdom from all sources for the years 1935 and 1936. Thus are shown the modest quantities from Australia and N.Z. during March, the larger volume in April, the peak periods in May and June, and the tapering off in July.

It will be observed that U.S.A. Apples were continuously imported into U.K. during 1936 and that the quantities were substantial during portion of the period when Australian and N.Z. supplies were coming forward.

The information in this article is taken from the valuable publication entitled "Apples and Pears" issued by the Imperial Economic Committee.

SOUTHAMPTON Britain's Imperial Gateway

"Linking the Producers of the Empire with Markets of Great Britain and the Continent"

PERISHABLE TRAFFIC.

Careful handling, speedy transit, first delivery in the market, is, of course, what perishables require. But before all that the question of cold storage often arises, especially for things like meat and fruit, eggs and fish. This is how it is solved at Southampton Docks

WHERE PERISHABLES DON'T PERISH.

Right by the quayside are the premises of the International Right by the quayside are the premises of the International Cold Storage & Ice Company Ltd., up to date, approved by Lloyd's, one vast building with a total capacity of 1,700,000 cubic feet. And because it is so near the quays, the transfer of produce from the ship to the store is carried out astonishingly quickly, and the time of exposure to the atmosphere is scarcely worth talking about. In fact, goods are under refrigeration practically the whole time from moment of removal from ship's hold until despatch in special railway vans or lorries for the different markets.

SPECIALISED ACCOMMODATION.

Inside, the store has five floors and is divided into sixty-one chambers, so that a great variety of perishables can be accommodated each at its own particular temperature, and under the most suitable conditions. In fact you can have any temperature between zero and 45 degrees Fahrenheit. After a room has been cleared, "Ozone" plant is used to deodorise it, and make it sweet and clean for the next arrivals.

A complete list of what can be found in the store at almost any time would be interminable, but the chief items are fruit, meat, butter, fish, game, poultry, eggs and hops; in fact, anything could be kept there fresh for almost any length of time. Sometimes the produce has not been cleared by the Customs when it enters the store and so there are special bonded rooms for this.

As examples of the space available and what can be done, the following is interesting:—

the following is interesting:—
FRUIT, 640,000 cubic feet of storage space has been specially allocated for the reception of fruit. Each chamber has an independent system of refrigeration by cool air circulation, together with means for control of humidity and ventilation. In this way it is possible for every class of fruit to be stored under ideal conditions, and for a large range of temperatures to be maintained.

PEARS: Can be unloaded at the Cold Storage wharf, and sorted up to mark actually in the Cold Store and loaded into refrigerated trucks. From the time the fruit leaves the ship's cold chamber, until it is being sorted to mark in the cold store, is less than five minutes. The con-

dition of the fruit is therefore kept practically in a refrigerated state until it is actually delivered at Covent Garden, Spitalfields, or whichever Market in London to which the fruit is consigned.

Think of the time saved where vessels call first at a Continental Port—then on to Hull—then London—approximately five days later than those ships would discharge at

DESPATCH FROM THE STORE.

Both the road and rail services of the Southern Railway are at your service at the International Cold Store. Delivery to craft can be made with ease. The advantage of despatching produce by train is that there is a loading platform right inside the store, long enough to take half a full-length freight train. One shunt, and the whole train is complete. And of course special refrigerated railway vans are always provided so that goods arrive at the market just as fresh as when they left their country of

WHY SOUTHAMPTON?

Southampton has not become one of the principal centres for the importation of perishable produce into Britain without reason. In fact, more than thirteen million packages of fruit alone and tremendous quantities of meat and dairy produce arriving each year at these modern docks thoroughly test the arrangements made, and find them perfectly satisfactory.

And it is the often tried efficiency of Southampton which enables it to advance its claims against those of other British ports for the handling of perishable produce.

ports for the handling of perishable produce.
But there are other reasons. The largest liners can enter the docks at any state of the tide so that there is never any irritating wait before a vessel can be berthed. Also Southampton is the first berthing port by liners approaching England from the south whence the great majority of perishable produce comes. This means that the Metropolitan markets and the industrial Midlands are reached through Southampton considerably quicker than by other routes. The advantages of being first in the market are obvious. Freight trains take only three hours to reach London and service to the Midlands is equally good. In addition, the fact that the population in the South of England is rapidly increasing and now sixteen million people live within a radius of 100 miles of Southampton Docks means that there is a constant and ever ready market at the very doors of the Port for perishable produce which is after all essential to the well-being of this great population.

SOUTHAMPTON

OWNED AND MANAGED BY THE SOUTHERN RAILWAY OF ENGLAND

Australasian Agents: W. H. BEVAN & CO. PTY. LTD. Gardiner House, 71 York Street, Sydney 14-16 Bond Street - Melbourne

APPLE GROWING A WORLD-WIDE INDUSTRY—(Continued).

The following table shows the importation of Apples into the United Kingdom from all sources:—

Thousand Bushels.

But The Chapter of the Contract of the Contrac	The first of the control of the cont
Australia. New Zealand.	Canada. United States. Countries.
Month of asking [1935. 1936. [1935. 1936.	1935. 1936. 1935. 1936. 4 1935. 1936.
January L. A. M. L. A.	1,095 1,063 517 745 134 3
February	702 658 3 579 624 6 2 4
March	459 567 664 737 41 83
April .5 755 758 758 757 211 117	138 36 294 408 2 44 112
May	5 — 21 85 7 64
June 1.4. 1.4. 1,018 1,388 1 180 355	→ · · · · · · · · · · · · · · · · · · ·
July 675 437 51 139	$\frac{1}{2}$ $\frac{1}$
August	2 - 237 138 39 3
September	432 73 1,010 144 38 -
October	1,731 1,105 1,323 393 160 1
November	74 [1,630] 918 4 [] 4849 [454 47] 382 —
December	1,177 804 626 354 45 —
Total	7,371 5,224 6 6,144 4,132 6 7 934 279

Pears

World Production 115,000,000 Bushels Annually.

PEARS, like Apples, are grown in every country of the temperate zones. The world's total production in 1937 is stated as 115,136,000 bushels, the United States being by far the largest producer, with 32,760,000 bushels, Germany comes next with 22,024,000 bushels, and then follows Italy (10,507,000 bushels), France (9,900,000 bushels, Japan and Austria next with 7,000,000, and Australia is tenth on the list with 2,640,000 bushels.

Australia exports 732,000 bushels, mainly to Great Britain, but this total is a mere trifle compared with the 2,834,000 bushels exported by the United States, and a long way below the 1,136,000 bushels exported by Italy.

The United States consumes the bulk of its huge production. There is an enormous market at home for fresh Pears, and large quantities are dried and canned for home consumption and export. South Africa, where the

industry has been expanding steadily in recent years, exported 557,000 bushels in 1937.

The principal importers of Pears are the United Kingdom (2,581,000 bushels in 1937), Germany, 1,127,000 bushels; France, 560,000 bushels; Austria, 383,000 bushels, and Sweden, 327,000 bushels. Other importing countries are Canada, 375,000 bushels; Brazil, 240,000 bushels, Belgium, 272,000 bushels; Switzerland, Netherlands, Egypt, Finland and Denmark and the Irish Free State.

Australian Acreage.

In Australia the acreage under Pears has shown only small variations during the past 20 years. In 1919 the total was 22,265 acres. By 1924 it had increased to 22,665 acres, but from 1924 to 1934 there was a steady decline to 19,751 acres in the latter year. Since then there has been a slight increase to 20,316 acres at present. Of this total nearly 11,500 acres are in Victoria, the only other States with important acreages being New South Wales, with 3,678 acres, and Tasmania, 2,254 acres. The acreage in New South Wales has been reduced by 900 acres and in South Australia and Victoria the reductions are 600 acres and 500 acres respectively.

Production of Tung Oil

The attention of our readers is drawn to the advertisement in this issue on behalf of Tung Oil Mills Limited, Gardeners-road, Mascot, Sydney. This company has been formed mainly for the purpose of providing milling and marketing facilities for Tung tree growers throughout Australia. They have erected a modern factory situated at the corner Gardeners and Botany roads, Mascot, where there has been installed a modern and complete plan for processing large quantities of Tung nuts.

The company commenced initial production of Tung oil last September, thus marking the first occasion on which Tung oil has been produced commercially in any part of the British Empire. The oil produced has been readily sold to paint and varnish manufacturers situated in Brisbane, Sydney, Melbourne and Adelaide and has been pronunced a first class oil of very good colour and more than equal to the best oil imported from China. Apart from the Australian market, which requires about 1,200 tons of this valuable drying oil per annum, the company has received enquiries for its output from large firms abroad, particularly in America, England, Belgium and

Germany. It will, however, be several years yet before the company would be able to supply the requirements of Australian manufacturers and the management of the company states that if the company had the product in nuts from 100,000 acres or more it would not find the slightest difficulty in obtaining a market on behalf of growers for all the resultant oil that could be produced.

The company has adopted a policy of establishing extensive nurseries for the production of reliable yearling nursery trees, which it supplies to growers at a low price and on very easy terms and at the same time enters into a contract with the purchaser to market all the resultant nut crops for a period of ten years or more. The company has already distributed large numbers of trees in N.S.W., Queensland, Western Australia and Norfolk Island, and such is the demand anticipated for next year's planting that the company has planted seed nuts which should result in approximately 300,000 trees being available to growers next season. The company supplies free advice as regards suitability of soils and location and all those interested in this most promising of primary industries should communicate with the company without delay at the address mentioned above.



Fruit for Great Britain

Serving a Population of Over 13,000,000 in the NORTH AND MIDLANDS.

3rd Port in United Kingdom

Buyers attend from all parts of England, Scotland, and the Continent. Regular sailings to Continental Ports provide unrivalled Markets for re-export of Empire Fruit. Specially Constructed Refrigerator Vans carry Fruit direct from Steamer to inland destinations by Express Trains.

TEN MODERN DOCKS entirely Owned and Managed by The London and North Eastern Railway

Full Information and Booklets supplied by-BURNS, PHILP & CO. LTD.

7 BRIDGE STREET, SYDNEY.

312 COLLINS STREET, MELBOURNE, & BRANCHES.

Westralian Farmer

Limited

West Australia

Head Office: 569 WELLINGTON ST., PERTH.

Fremantle Office: 19 NEWMAN STREET.

London Office: 7-8 LLOYD'S BANK CHBS., 1-2 HENRIETTA ST., COVENT GARDEN, WC2.

Telegraphic & Cable Address: "WESFARMERS."



FRESH FRUIT AND EGG PACKERS, BUYERS AND PRODUCERS' AGENTS.

GENERAL MERCHANTS. SUPPLIERS OF ALL FARMERS'
REQUIREMENTS.

COOL STORE PROPRIETORS.

PRODUCE, WOOL & SKIN BROKERS.

SHIPPING AGENTS.

Sole Suppliers of "Black Swan" Brand Apples, Pears, Grapes, Oranges

Australian and N. Z. Apples and Pears

Review of the 1938 Season

A LOOKED-FOR FEATURE in the export business is the annual report by Messrs. F. W. Moore & Co., of London. These annual reports make most interesting reading and they are a disinct contribution

to the improvement of the trade.

The 1938 report, issued from London in October, comments on the enigmatical nature of the fresh fruit business—the large American carryover, the ruling low prices, and the fears that Apples and Pears from Australia and N.Z. would arrive on a poor market. However, several factors operated to bring about an entirely different set of conditions and thus fruit from the antipodes brought better prices than for several seasons past. These factors included the general good quality of the fruit, better spaced arrivals, and the fact that frosts in England and on the Continent reduced the competition from soft fruits.

Quality and Condition.

On the subject of quality, the report is guarded as improvements are still deemed to be necessary. Stress is laid on the importance of good outturn from ships.

"Unfortunately, an unusually large delivery in one bottom of the valuable Tasmanian C.O.P. was substantially ruined in transit: then ten weeks later there was a similar experience with a big shipment of Sturmers and late varieties from the same State, but, generally speaking, with these distressing exceptions, we would say that the carriage and the landed conditions of the fruit was quite equal to that of 1937, and an improvement on 1936.

"Some of the vessels were undoubtedly too long on the voyage, and making full allowance for the considerable difficulties with which ship owners are faced in catering for a trade embracing the enormous coastline of Australia, we can still only say that something better is needed for the welfare of the Australian Apple trade."

The statement is then frankly made that certain de-

liveries were not impressive for high standard.

The N.Z. Apples were not deemed to be up to previous year's standard, despite the Government guarantee. Western Australian Apples were also lacking in the matter of quality. Fruit from Victoria, South Australia, N.S.W. and Tasmania, was satisfactory, although too many undercolored Jonathans were in evidence.

The continued improvement in the Tasmanian pack won approval from the trade. Growers are adopting more standardised methods: the elimination of the few non-descript varieties has helped the marketing and assisted the general Tasmanian reputation.

Apple Prices.

The average for Tasmanian consignments of Apples in the 1938 season was 9/5½, as compared with 7/11½ in 1937, and 7/2½ in 1936. The lowest price in the last nine years was 6/4½ in 1933, when 3,088,767 cases were sent from Tasmania to U.K. and Continent.

Pears.

For the most part the market for Australian Pears was good. The S. African growers were again in some trouble, and there were a lot of competition from A. America—whose Argentine Pears are well liked. The English mar-

ket is obtaining some relief nowadays from supplies of S. African W.B.C. Pears. For many years a big proportion of the W.B.C. crop in S Africa was sent to U.K.—as much as 230,000 boxes in a season. Prices during the last three years have been exceedingly low for this variety, and in 1938 the S. African shipment of W.B.C. Pears totalled only 126,000 boxes.

The quantity is expected to dwindle still further as the S. African Government is said to be considering requests from the growers to set up or assist the establishment of additional canneries to absorb the total production of these Pears. [The economic value of this procedure, in view of California's experience, is questioned.]

The export of Pears from Australia and N.Z. should be examined with the view to the total quantity being kept within the requirements of the U.K. markets. Far too many varieties come along. In the best interests of producers the list should be reduced to the 12 or so varieties on the "permanent" list as recommended by the Apple and Pear Council. The N.Z. list of 25 varieties is too large.

Australian and N.Z. Quota.

The instituting of a voluntary quota, commencing in 1934, gave the fruit trade in England greater confidence at a time when it was sadly and badly needed. Any "sacrifice" has been repaid by the confidence created. "Sacrifice is hardly the word to be used when the limitation was adopted solely to keep the English market healthy.

The problems of living mathematically within the quota are traversed, but the view is held that, once announced, the quota should be observed. Then follows a condemnation of the diversion to England of cargoes destined for the Continent, outside the quota, about which the National Federation of Fruit and Potato Trades (London), and the Apple and Pear Council had made the strongest protests in official quarters.

Anglo-U.S.A. Trade Treaty.

The proceedings leading up to official representations in London, are dealt with in the report, the case for the Apple and Pear industry being presented by Mr. Everard Ross, the London representative of the Apple and Pear Council. At the time of writing, the details of the trade treaty were not known, but the hope was expressed that should the duty of 4/6 per cwt. be reduced, there would be a partially compensating arrangement, such as a compulsory quota or a closed season, during which U.S.A. Apples could not enter British ports.

Prospects for 1939.

Prophesies in the fruit business have proved to be unwise. However, the demand for N. American Apples has remained good, and at the moment of writing some doubt exists as to whether full supplies of colored varieties would be available for British markets.

The Oregon Newtown crop is heavy. There will be few, if any, English Bramleys and C.O.P. on the market when Australasian supplies arrive, and despite heavy taxation, the tone of the country appears more promising than for a considerable time past.

"BRITAIN'S WESTERN GATEWAYS



Imported Grapes, Cardiff Docks.

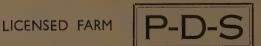


he convenient geographical position of the ompany's Docks at CARDIFF, SWANSEA, NEWPORT, BARRY, PORT TALBOT and PLYMOUTH, ombined with the excellent facilities they posses, make them eminently suitable as points of stribution for the country's

, etc., at the Company's South mouth Docks, apply to MAS, Chief Docks Manager, Great Western Railway, CARDIFF.

JAMES MILNE, General Manager - - Paddington Station, LONDON, W.2.

Producers' Co-operative Distributing Society Ltd.



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To the United Kingdom, the Continent and the East

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ORCHARD REQUISITES - BOX SHOOKS - BLACK LEAF 40 - WOOD WOOL - WRAPPING PAPER CORRUGATED STRAWBOARD PADS - SUPPLIED AT LOWEST RATES.

- ALSÓ -

CUTLER FRUIT GRADERS, the best machines designed in America for Apples and Pears. BROWN'S GRADERS, of local design, made to suit both small orchardists and packing sheds.

A Statistical Review

The following figures reveal the quantities of Apples and Pears shipped from Australia and New Zealand to the United Kingdom and the Continent:—

Arrivals from Australia for 1936-37-38.

Total Arrivals—	
Total Arrivals— Tas. W.A. Vic. N.S.W. S.A. Qld.	Total.
Apples. Pears. Apples. Pears. Apples. Pears. Apples. Pears. Apples. Apples.	es. Pears.
$1938 \mid 2,\overline{7}33,660 \mid 132,522 \mid 469,487 \mid 43,884 \mid 639,280 \mid 349,732 \mid 81,736 \mid 16,891 \mid 606,029 \mid 54,442 \mid 20,539 \mid 4,560,$	731 597,471
1937 2,686,437 208,747 615,285 30,212 701,171 479,460 82,241 13,649 246,372 50,040 13,652 4,345,	158 782,108
$1936 \begin{bmatrix} 2,739,232 \end{bmatrix} 140,782 \begin{bmatrix} 815,514 \end{bmatrix} 46,738 \begin{bmatrix} 612,492 \end{bmatrix} 410,126 \begin{bmatrix} 73,461 \end{bmatrix} 17,679 \begin{bmatrix} 441,734 \end{bmatrix} 25,428 \begin{bmatrix} 21,208 \end{bmatrix} 4,703,$	641 640,753
Service of the service of the Distribution, 1938. The service of	
Total—Programme and September 1990 and	
Tas. W.A. Vic. N.S.W. S.A. Qld.	Total.
Apples. Pears, Apples Pears, Apples Pears, Apples Pears, Apples A	les Pears.
U. Kingdom . 2,515,007 132,522 321,611 35,761 592,395 340,692 74,005 16,891 486,204 54,442 20,539 3,950	761 580,308
Continent 218,653 — 147,876 8,123 46,885 9,040 7,731 — 169,825 — — 590	,970 17,163
Grand Total . 2,733,660 132,522 469,487 43,884 639,280 349,732 81,736 16,891 606,029 54,442 20,539 4,550	791 507 471
Grand 10tal . 2,100,000 102,022 405,40 (40,004 005,200 045,102 01,100 10,001 000,025 04,442 20,005 4,000	,151 591,411
Summary, 1938.	
Tasmania. Mainland. New Zealand. Total	l.
Apples. Pears. Apples. Pears. Apples. Pears. Apples. Pears.	
11 Kingdom 2 515 007 132 522 1 444 754 447 786 1 002 134 81 150 4 961 895 661	458

17,163

464,949

251,208

1,253,342 105,350

372,317

1.817.071

SOUTHAMPTON—FOR THE DISCHARGE OF FRUIT.

Continent, Etc.

Excellent Facilities-Time Advantage.

Southampton is not termed "The gateway to England's Markets" without reason. It is, in fact, the logical port of discharge for all perishable produce from Australia and the Dominions, for England.

Its natural advantages such as four high tides each day, enabling berthing at any time of day or night, are enhanced by facilities that have been made available by the enterprising Southern Railway of England—which organisation owns and controls Southampton Docks.

organisation owns and controls Southampton Docks.
Yes! Port of Southampton is truly the "Natural Gateway for distribution to the Great London markets and the Midlands."

Excellent Facilities for Exporters.

The shipping of perishable fruit from Australia and Dominions to England necessitates the best refrigeration possible, both on the boat and between the boat and the markets, to ensure the fruit reaching London markets in prime condition. At Southampton Docks, on the very wharves there is a cold store capacity of 1,700,000 cubic feet. When a cargo arrives at Southampton it is transferred from ship store to deck's store in minimum time with the modern electrical unloading equipment. It is sorted to mark, packed in insulated containers, loaded on refrigeration train cars, and rushed by express to London and Midland markets. The extra cost entailed by shipping through Southampton and railing to London is infinitesimal compared with the advantages of time saved and facilities provided, and the knowledge that deterioration through loss of refrigeration is eliminated

Southampton Dock's cold storage has another great advantage. When several ships, carrying cargoes of fruit, arrive at Southampton in short margin of each other, the cargoes may be stored at Southampton or

railed to markets other than London, and thereby prevent a "glut" which simultaneous marketing would produce.

842,178

5,804,073

41,363

702,821

Time Advantages.

Time is a precious thing in any commercial undertaking, but in the shipment from one country to another of perishable goods such as fruit, time is the deciding factor in whether your goods reach the market in prime condition or otherwise. It is of inestimable value to shippers of fruit to England to know that as many as four or five days can be saved by unloading at Southampton Docks, and then railing to London. Not only is the journey reduced in distance, but transport time is speeded up by the most modern docking, unloading, storing and transport equipment. A record cargo of 322,068 cases of deciduous fruit from South Africa was discharged from a Union Castle Mail Steamship, sorted to mark, railed to various points throughout England, all within 2½ days. Another fact that helps in reducing transport time is that Southampton Docks are owned and controlled by Southern Railways—a reason for the complete co-operation between ship and rail transport units.

To shippers of fruits and other perishable goods, these many facts about Port of Southampton Docks are worth consideration. The best facilities available, the saving of days indicated, and the ensurance that the goods will arrive at the various markets in prime selling condition, all point to Southampton as the most logical and profitable port through which to ship perishable goods to England and her markets.

Judge: Have you ever been sentenced before? Woman (ashamed): Yes, once I was fined.

Judge: How much?

Woman (sobbing): Penny excess postage.



The above illustrates a simple method for the amateur to make concrete slabs of a natural rustic and attractive appearance which can be used for constructing a Pergola or for building Dwarf Garden Walls,

Mix the concrete and lay it flat. Two or three hours later cut with a trowel to about one-third depth. Twenty-four hours later break the slabs at the trowel mark. Stack and keep slabs wet for a week.

Advice on any subject concerning the use of cement gladly given free of charge on request to:

Australian Cement THO

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CASIDS

constructed with ____

NAILS

give 100% **Efficiency**

"TITAN" NAILS HAVE HEADS CONCENTRIC WITH THE SHANK AND POINTS THAT ARE CENTRAL. IN CONSEQUENCE, MORE CASES PER DAY CAN BE MADE WITH "TITAN" NAILS.

If more holding power is needed use "TITAN" PROCESSED NAILS which are manufactured according to a Patented Formula. Up to 50% more cases can be made for a small additional cost.

AS AN EXAMPLE OF THE SAVINGS WHICH CAN BE EFFECTED BY USING "TITAN" PROCESSED NAILS, WE GIVE THE FOLLOWING AUTHORITATIVE FIGURES:—

The holding power of $1\frac{1}{2} \times 14$ Polished Nails - 42 lbs. The holding power of 11 x 15 "TITAN" 1½ x 15 "TITAN" PROCESSED NAILS - 48 lbs. 1 Cwt. of 1½ x 14 Polished Nails makes 1,578 Cases. 1 Cwt. of 1½ x 15 "TITAN" PROCESSED NAILS makes 2,453 Cases.

Which is equivalent to a saving of £5/13/ per ton of Nails, to which must be added the saving in rail freight on the basis of 13 cwt. to the ton.

To be genuine, cases must bear the "TITAN" Brand and Registered Number 16,333/28.

Demand "TITAN" Products from your supplier and if not stocked, apply direct to-

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Lorimer Street, South Melbourne, S.C.5 VICTORIA

MX 2191 (2 lines).

Fruit Grading Regulations

Apples, Pears, Peaches, Citrus, Grapes, Bananas, Prunes and Tomatoes

Interstate Uniformity in Grades
Desired

E ACH STATE IN AUSTRALIA has an Act of Parliament dealing with the grading and packing of fruit and vegetables under which regulations are gazetted defining grades and many details.

Under the auspices of the Australian Apple and Pear Council a Fruit Grading Conference was held at Sydney in December, 1937, when certain amendments to existing regulations were proposed to State Governments in relation to domestic and interstate grades for Apples and Pears. The following schedules set out the decisions

of that conference as gazetted in Victoria.

· As it is the desire among the Australian States for its regulations to be as nearly in conformity as possible, both N.S.W. and Queensland have these Apple and Pear regulations before them for consideration as to gazettal.

With regard to Bananas, Citrus, Grapes, Prunes, Peaches and Tomatoes, the regulations are as gazetted in

the State of Victoria.

First Schedule.

Grade Standards for Apples and Pears.

Apples and Pears must be graded and packed in accordance with the following provisions:—

- (a) The package shall be marked with a true designation of the grade, whether "Extra Fancy," "Fancy," "Good," or "Domestic," of the Apples or Pears contained therein.
- (b) Each external layer of Apples or Pears on the top, bottom, and sides of the fruit, whether described as "Extra Fancy," "Fancy," "Good," or Domestic," shall be a true indication of the average grade of the Apples or Pears throughout the package.

Apples.

"Extra Fancy."

- (c) Apples described as "Extra Fancy" shall consist of sound, clean, well-formed mature Apples of one size and one variety free from broken skins and from disease. Slight blemishes may be permitted, provided such blemishes do not exceed 10 per cent. by number of the total fruit in any case, and provided that the total area covered by such blemishes on any Apple does not exceed the area contained in a circle having a diameter of a quarter of an inch.
 - (i) Russeting shall not be considered a blemish, provided that not more than 10 per cent. of the
 - surface of any Apple is affected.

 (ii) The minimum sizes and color requirements shall be as set out hereunder, but with no limit as to maximum sizes.

"Fancy."

(d) Apples described as "Fancy" shall consist of sound, clean, and fairly formed mature Apples of one size and one variety, free from broken skin and from disease.

Slight blemishes from any cause may be permitted, provided such blemishes do not exceed 10 per cent. by number of the total fruit in any case, and provided that the total area covered by such blemishes on any Apple does not exceed the area contained in a circle having a diameter of a quarter of an inch.

- (i) Russeting shall not be considered a blemish, provided that not more than 30 per cent. of the surface of any Apple is affected. Provided that in regard to the Sturmer variety not more than 50 per cent. of any Apple may be russeted.
 - (ii) The minimum sizes and color requirements shall be as set out hereunder, with no limits as to maximum sizes.

"Good."

- (e) Apples described as "Good" shall consist of sound Apples of one size and one variety, free from broken skins, and not seriously blemished or injured by any disease, but fruit slightly blemished by Black Spot fungus, caterpillars, hail marks, or limb rubs may be permitted, provided that the total area covered by such blemishes on any Apple of two and a half inches and over does not exceed the area contained in a circle having a diameter of half an inch, and on any Apples under two and a half inches does not exceed the area contained in a circle having a diameter of a quarter of an inch. Provided, further, that where the blemishes are wholly restricted to superficial hail marks, the blemishes on any Apple of two and three quarter inches and over do not exceed the area contained in a circle having a diameter of one inch, and on any Apple under two and three-quarter inches do not exceed the area contained in a circle having a diameter of half an inch.
 - (i) Russeting shall not be deemed to be a blemish with the Sturmer variety, but with other varieties the russeting must not be more than 50 per cent
 - (ii) The minimum sizes shall be as set out hereunder, with no limit as to maximum sizes.

"Domestic."

- (f) Apples described as "Domestic" shall consist of sound Apples of one size and one variety, free from broken skins and serious damage caused by insects, disease, or otherwise, but may include blemished fruit, provided that the total area of any blemishes on any one fruit shall not exceed the area of a circle having a diameter of three-quarters of an inch; provided further, that where the blemishes are wholly restricted to superficial hail marks, the blemishes on any Apple do not exceed the area in a circle having a diameter of one and a half inches.
 - (i) The minimum sizes shall be as set out hereunder, with no limit as to maximum sizes.

After the 30th June of any year no person shall sell Apples described as "Domestie" with the exception of the varieties known as "Granny Smith," "Democrat," "Rome Beauty," and "Yates."

Pears.

"Extra Fancy."

(c) Pears described as "Extra Fancy" shall consist of sound, clean, well-formed Pears of one size and one variety, free from any broken skins and from disease. Russeting shall not be deemed a blemish on games more properties and the contract of th

reetings

From the . . .

N.S.W. Chamber of Fruit and Vegetable Industries



W. MUSGROVE, Senior Vice-President.



JENKINS, President.



P. S. MACDERMOTT, Secretary.

Goodwill Message

The Editor, "Fruit World Annual," Box 1944, G.P.O., Melbourne, Vic.

Christmas once again! This Holy and Happy period seasonally affords contemporaries a suitable opportunity of thinking of others associated in the development and maintenance of kindred industries.

It is with the sincerest goodwill that I extend good wishes to all readers of your valued journal, to the producers whom we all desire to assist towards success, and to you, Sir, and your staff for the excellent services given to our Industries.

The Chamber, all interested will be glad to learn, has further successfully functioned throughout 1938. The Chamber taxed itself and its members mentally and physically during the entire course of the Royal Commission enquiry into the Fruit Industry, sparing no effort to be of the most valuable and instructive assistance possible to the industry as a whole. The Commission finding is awaited with interest and we trust the industry

More than ever does the Chamber hold its practical working ideal "Service with Integrity" before its members, thus giving to producers assurance that their business and economic welfare is safeguarded by a body of men who hold producers' interests paramount, realising also that growers' success means mutual advancement.

That 1939 be full of prosperity to all connected with the Fruit and Vegetable Industries is the earnest with the success of the connected with the success of t

wish of my colleagues and myself.

Yours faithfully, L. J. JENKINS, President.

Members of the Chamber

FRUIT SECTION

Associated Growers' Selling Bart Allen & Son. W. E. Bromley.
P. W. Chew & Co.
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S. J. Rhodes.
W. H. Southcott.
Terrill & Means. Thompson & Smith.

Thomas Street, Haymarket Telephone MA 5050

FRUIT GRADING REGULATIONS—(Continued).

Pears normally russeted, provided that normally clean-skinned varieties shall not be russeted over a greater area than 15 per cent. of the surface of any one Pear.

Superficial blemishes from any cause may be permitted, provided such blemishes do not exceed 10 per cent. by number of the total fruit in any case, and provided that the total area covered by such blemishes on any Pear does not exceed the area contained in a circle having a diameter of a quarter of an inch.

(i) None of the Pears in this grade shall be less than 21 inches in diameter.

"Fancy."

- (d) Pears described as "Fancy" shall consist of sound, clean, well-formed Pears of one size and variety, free from broken skins, and not seriously blemished or injured by any disease. Pears slightly blemished by Black Spot fungus, or from other causes, may be permitted, provided that the total area covered by such blemishes on any Pear does not exceed the area contained in a circle having a diameter of a quarter
 - (i) Russeting shall not be deemed a blemish on Pears normally russeted, provided that normally clean-skinned varieties shall not be russeted over a greater area than 30 per cent. of the surface of any one Pear.
 - (ii) None of the Pears in this grade shall be less than 2 inches in diameter.

"Good."

- (e) Pears described as "Good" shall consist of sound Pears of one size and one variety, free from broken skins, and not seriously blemished or injured by any diseases, but Pears slightly blemished by Black Spot fungus, or from other causes, may be permitted, provided that the total area covered by such blemishes on any Pear does not exceed the area contained in a circle having a diameter of half an inch; provided further that where the blemishes are wholly restricted to superficial hail marks, the blemishes on any Pear do not exceed the area contained in a circle having a diameter of 1 inch.
 - (i) Russeting shall not be considered a blemish.
 - (ii) None of the Pears in this grade shall be less than 2 inches in diameter.

"Domestic."

- (f) Pears described as "Domestic" shall consist of sound Pears of one size and one variety, free from broken skins, and not seriously blemished or injured by any disease, but Pears slightly blemished by Black Spot fungus, or from other causes, may be permitted, provided that the total area covered by such blemishes on any Pear does not exceed the area contained in a circle having a diameter of three-quarters of an inch; provided further that where the blemishes are wholly restricted to superficial hail marks, the blemishes on any one Pear do not exceed the area contained in a circle having a diameter of 13 inch.
 - (i) Russeting shall not be deemed a blemish.(ii) None of the Pears in this grade shall be less
 - than 2 inches in diameter.

Note.-Normally clean-skinned Pears means Pears of the following varieties, viz :- Packham's Triumph, Josephine de Malines, Williams Bon Chretien (Duchess or Bartlett), Howell, Doyenne du Comice, Beurre D'Anjou, Packham's Late, Clapp's Favorite.

Definition of Size.

The size of the Apples and Pears shall be as follows:-"2 inches," which terms shall include fruit 2 inches or greater diameter, but less than 21 inches.

"23 inches," which term shall include fruit 23 inches or greater diameter, but less than 21 inches.

"21 inches," which term shall include fruit 21 inches or greater diameter, but less than 23 inches.

"23 inches," which term shall include fruit 23 inches or greater diameter, but less than 2½ inches.

"2½ inches," which term shall include fruit 2½ inches or greater diameter, but less than 23 inches.

"23 inches," which term shall include fruit 23 inches or greater diameter, but less than 3 inches.

"3 inches," which term shall include fruit 3 inches or greater diameter, but less than 31 inches.

"31 inches," which term shall include fruit 31 inches or greater diameter, but less than 32 inches.

Grade Standards for Cavendish Bananas.

Bananas must be graded into either one or other of four grades, viz.:—"Sixes," "Sevens," "Eights," or "Nines," and be packed in accordance with the following provisions:--

The package shall be marked with a true description of the grade: each external layer shall be a true indication of the average grade.

Bananas in all grades must be sound, those described as "sixes" to be 6in. to 62in. long, with a minimum girth of 4in.; "sevens," 61in. to 71in. long, min. girth 4in.; "eights," 7½in. to 8½in. long, min. girth 4½in.; "nines," 8½in. and upwards in length, min. girth 43in. All measurements to be taken on the outside of the curve. From the junction of the fruit at the stem end to the apex or top of the fruit.

Grade Standards for Citrus Fruits.

Citrus fruits must be graded into one or other of three grades, viz .: - "Special," "Standard," or "Plain," and be graded and packed in accordance with the following pro-

- (a) The package shall be marked with a true designation of the grade.
- (b) Each external layer shall be a true indication of the average grade.
- (c) Citrus fruits described as "Special" shall consist of sound, clean citrus fruits, of one size and one variety, and of normal shape and appearance common to the variety, and of reasonably even color. Markings on the skin other than those caused by disease are permissible on any individual fruit, provided that such markings do not exceed 2½ per centum of the total superficial area of any individual fruit. Grapefruit, Lemons, Mandarins, and Oranges shall not be dry; and Oranges shall not be immature.
- (d) Citrus fruits described as "Standard" shall consist of sound, mature, clean citrus fruits, of one size and one

FRUIT GRADING REGULATIONS—(Continued).

variety, of normal shape and appearance common to the variety, and of reasonably even color. Markings on the skin other than those caused by disease are permissible on any individual fruit, provided that such markings do not exceed 10 per centum of the total surface area of any individual fruit. Grapefruit, Lemons, Mandarins, and Oranges shall not be dry,

and Oranges shall not be immature.

(e) Citrus fruits described as "Plain" shall consist of sound, mature, clean citrus fruits, of one size and one variety, of reasonably even color and appearance common to the variety. Markings on the skin other than those caused by disease are permissible on any individual fruit, provided that such markings do not exceed 25 per centum of the total area of any individual fruit. Grapefruit, Lemons, Mandarins, and Oranges shall not be dry, and Oranges shall not be immature.

Note.—To ascertain the proportion of juice extractable from citrus fruit, the halves of a freshly divided citrus fruit shall be rotated upon a conical glass Lemon squeezer under hand pressure only. The resultant juice shall be strained through a strainer of not less than thirty meshes to the linear inch.

Citrus fruits in any package shall not vary in size by more than 1 inch in diameter, and shall be sized into the following sizes:-

"2 inches" shall include fruit of 2 inches or greater diameter, but less than 21 inches.

"2½ inches" shall include fruit of 2½ inches or greater diameter, but less than 2½ inches.

"2½ inches" shall include fruit of 2½ inches or greater diameter, but less than 2% inches.

"23 inches" shall include fruit of 23 inches or greater diameter, but less than 3 inches.

"3 inches" shall include fruit of 3 inches or greater diameter.

Grade Standards for Grapes.

Grapes must be graded into one or other of four grades, viz .: "Special" "Standard," "Special Assorted," or "Standard Assorted," and be graded and packed in accordance with the following provisions:-

(a) Each external layer shall be a true indication of the

average grade throughout the package;
(b) Grapes described as "Special" shall consist of sound, clean Grapes of one variety, of uniformly good color for the variety, firmly attached to the stalks, not split, crushed, wet, soft, wilted, immature, shrivelled, or scarred; free from diseased, raisined, dried, or small berries;

(c) "Standard," sound, clean Grapes of one variety, of fairly good color for the variety, firmly attached to the stalks, not split, crushed, wet, soft, immature, or wilted; free from diseased, dried, or small berries;

- (d) "Special Assorted," sound, clean Grapes, of not more than three varieties in any package, of uniformly good color for each variety, firmly attached to the stalks, not split, crushed, wet, soft, wilted, immature, shrivvelled, or scarred; free from diseased, raisined, dried, or small berries; and
- (e) "Standard Assorted," sound, clean Grapes, of not more than three varieties in any package, of fairly good color for each variety, firmly attached to the stalks. not split, wet, soft, immature, or wilted; free from diseased, dried, or small berries.

Grade Standards for Prunes.

Prunes must be graded into either one or other of eight grades, viz.:—"20-30," "30-40," "40-50," "50-60," "60-70," "70-80," "80-90," and "Small," and be graded and packed in accordance with the following provisions:— The package shall be marked with a true designation of

Each external layer of dried Prunes shall be a true indication of the average grade throughout the package. Dried Prunes in each grade shall be of such a size that the number of fruit in 1 lb. weight shall be not less than the smaller number, nor more than the larger number in the name of the particular grade shown on the package, excepting that in the case of "Small" grade the number of fruit in 1 lb. weight shall be over 90; and provided also that a total margin of not more than 5 per centum by count shall be allowed in each grade of fruits from the grade immediately below and above such grade.

Grade Standards for Tomatoes.

Tomatoes must be graded into one or other of three grapes, viz.:—"Ripe," "Semi-ripe," or "Green," and be graded and packed in accordance with the following con-

(a) The package shall be marked with a true designation

of the grade.

(b) Each external layer shall be a true indication of the average grade throughout the package.
(c) "Ripe" Tomatoes which are two-thirds or more fully

colored, sound and free from disease.

(d) "Semi-ripe" Tomatoes which have a slight pink or reddish color on the skin or around the seed, sound and free from disease.

(e) "Green" Tomatoes which are green to greenish-yellow in color, sound and free from disease.

Size Requirements for Tomatoes.

Tomatoes in any package shall not vary in size by more than 1 inch in diameter, and shall be sized into the following sizes:-

"Small" shall include Tomatoes under 2 inches in di-

"2 inches" shall include Tomatoes of 2 inches or greater diameter, but less than 3 inches.

Grade Standards for Peaches,

Peaches must be graded into either one or other of threegrades, viz .: - "Extra Fancy," "Fancy," or "Good," and be graded and packed in accordance with the following provisions:--

(a) The package shall be marked with a true designation of the grade; also whether the Peaches are "Slipstone" or "Clingstone."

(b) Each external layer shall be a true indication of the average of Peaches throughout the package.

(c) Peaches described as "Extra Fancy" shall consist of sound clean well-formed Peaches of one size and onevariety, free from broken skins and disease. Superficial blemishes caused by hail marks or limb rubs shall not be allowed to a greater extent than 10 per centum (by number) of the total Peaches in any case. The Peaches shall be of uniform color. None of the Peaches shall be less than two and a quarter inches in diameter.

(d) Peaches described as "Fancy" shall consist of sound clean well-formed Peaches of one size and one variety.

50

20

free from broken skins, and not seriously blemished or injured by disease; but Peaches slightly blemished by hail marks or limb rubs may be sold provided—

- (i) the proportion of such Peaches does not exceed 15 per centum (by number) of the Peaches in any case.
- (ii) the total area covered by such blemishes on any Peach does not exceed the area contained in a circle having a diameter of a quarter of an inch. None of the Peaches shall be less than two and oneeighth inches in diameter.
- (e) Peaches described as "Good" shall consist of sound Peaches of one size and one variety, free from broken skins, and not seriously blemished or injured by any disease; but Peaches slightly blemished by hail marks

or limb rubs may be sold, provided that the total area covered by such blemishes on any Peach does not exceed the area contained in a circle having a diameter of a quarter of an inch. The diameter of Peaches shall not in any case be less than two and one-eighth inches except in the case of varieties which, in the opinion of the Director, may be regarded as normally small, in which case none of the Peaches shall be less than two inches in diameter.

(f) Peaches sold in open packages shall be graded into either one or other of the three grades.

Ninth Schedule.

This provides for standard sizes, requirements, and uses of packages.

K.COLE

MINIMUM SIZES AND COLOR REQUIREMENTS FOR King Cole

, (0110	it ittis@Ulitz	WILLIAM I	OIL	iting core	E	11.001313	00	20
APPLE	s.			King David	21	~ ← K.D. ↑	70.	35
		Percentage	of	King Pippin	21		30	10
		teristic of	the	Kirks Carrington	21/8	K.CAR.	50	20
	escription. s	sary of e	ach	London Pippin	21	L.P.	,`.	-
	bbreviated 4		ach	Lord Nelson	21/4	L.N.		-
	<u> </u>	Extra	ley	Lord Suffield	21	L.S.F.	-	_
24 "	A.S.	Alley.	, 2	Lord Wolseley	21	L.W.		
21	A.P.M.	30_	10	Macintosh Red	24	MC.R.	70	35
21	ALX.	30	10	Mammoth	24	MAM.	- 1, 1 ,	
21	ALF.	Piggs (1977)	<u></u>	Mobb's Codlin	$2\frac{1}{2}$	M.C.	<u>. </u>	
21	ALLSOPP.			Newtown Pippin ,	21	NT.P.	<u> </u>	as weeks
21	ARO.	50	20	Nickajack	21	N.J	30	10
24	A.B	50	20	Northern Spy	21	16. N.S. 1994	30	10
21	BEN.D.	- 30	15	Perfection	21	PERFN.	50	.20
21	BUN.	50	20	Prince Alfred	21/2	P.A.	30	10
21	C.R.	30 🗸	10	Pomme de Neige	$2\frac{1}{8}$	P.D.N	30	10
21	CLEO.		٠. سيب	Ranelagh	21/4	B.A.N.	30	. 10
21	CMN.	50	20	Reinette du Canada .	24	R.D.C.	<u> </u>	
21	COM.	÷ 50	20	Red Carrington	21	R.CAR.	40	10
2	.C.O.P.	30	5	Ribston Pippin	21	R.P.	- ·	
2 - 1	CROF.	50	20		21	ROKE.	40	20
24	C.E.	30	10		21	R.B.	30	.10
21		50	20	Rymer	21	RYM.	25	10
			135	Senator	21	SEN.	30	10
	DHTY.	40	20	Strawberry Pippin	21	STRAW,	30	10
100	D.C.	70	35	Spitzenburg	21 .	SPTZ.	40	15
117.8				Scarlet	21	S.PM.	50 : 4	. 20
		. 50	20	Schroeder	21	SCH.	100	_
			20	Statesman	21	STN.	30 .	10
						STAY.W.	3.0	10
				Stone Pippin	21	S.P.		-,
21	FOS.	50 1	20	Sturmer	21	STP.	-	
21	G.F.	. 50	10	Stewarts (Ballarat) .	21	BLT.		
21	G.D.	e		Tasman's Pride	21	T.P.	50	20
21	G.S.			Twenty Ounce	21/4	T.O.	_	-
24	GRAV.	4), 4 <u>—1</u> 76, 76	-	Wellington	21	WELL.	_ ':'	
21	G.G.		-		21	W.W.P.		Spinor)
21	HOOV.	50	30-		21.	W.S.		
21	H.B.	30	1.5		21	W.M.	20 '	10
21	I.P.	20	10	Worcester Pearmain .	21	W.PM.	50	20
- 7	JON.	50	20		2 .	YATES	50	20
21	JUB.	50	20	Unclassified	distribution of	Name of Apple	- 1	_
	APPLE Sizes I A sizes I A sizes I A 21 21 21 22 22 22 22 22 22 22 22 22 22	APPLES. Sizes Description s in Abbreviated ster. (if any). 2½ A.S. 2½ A.P.M. 2½ ALX. 2½ ALF. 2½ ALLSOPP. 2½ ARO. 2½ A.B. 2½ BEN.D. 2½ BEN.D. 2½ C.R. 2½ C.E. 2½ CLEO. 2½ CMN. 2½ C.O.P. 2 CROF. 2½ C.E. 2½ DEL. 2½ DEM. 2½ DEM. 2½ DEM. 2½ DEM. 2½ DEN. 2½ C.E. 2½ DEN. 2½ C.E. 2½ DEN. 2½ C.E. 2½ DEN. 2½ D	APPLES. Percentage Color. Charteristic of variety of each charteristic of each charteristic of variety of each charteristic of each chart	Sizes Description Sizes Abbreviated Color. Characteristic of the variety necessary of each Apple in each Extra Fancy.	APPLES	APPLES	APPLES. Percentage of Color. Characteristic of twarlety necessists of Color. Characteristic of twarlety necessists of the variety necessists. Characterists of twarlety necessists. Characterists of twarlety necessists. Characterists of twarlety necessists. Characterists of twarlety necessists. Characterists. Character	APPLES

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Packing of Fruit

By Basil P. Krone, Fruit Packing Instructor, Victorian Department of Agriculture.

F FRUITGROWERS ARE TO COMPETE successfully on overseas markets, it is essential that they should adopt the methods of packing already in use by other

large fruit-producing countries.

Although there are many attractive methods of packing fruit, it has been discovered that some seemingly good packs are quite unsuitable. Complaints of slack packing and damaged fruit have caused many investigations to be made, with the result that a number of problems have now been overcome.

The experience of past years has shown that packing, with a comparatively large pocketing system, contributes more largely to better transport conditions of the various fruits than do the tight packs with their small pockets or spaces between the fruit.

The trend of advancement is to adopt packs that produce these larger pockets, for example, if Apples are packed tightly with say five layers in the case, it would be a better policy to pack them more loosely, viz. less Apples per layer, but six layers in the case.

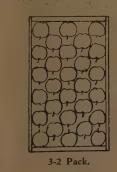
This looser method of packing permits the fruit at

each end of each layer to be nested just slightly deeper than the rest, so that when the top layer is finished, the bruising, which so frequently occurs in the lidding pro-

cess, is eliminated.

3-3 Pack

With this style of packing the contents are held gently but firmly by packing the fruit much higher than the top of the case. When fruit is packed high in this manner, very thin flexible lids are required. The lids cannot be too thin, provided they are strong enough not to break.





Correct use of side cardboards protects the bulge. If card-boards are of insufficient width, pull them up a little after the bottom layer has been packed.

The flexibility of our present lids should be increased by making them of three or four narrow laths instead of two wide ones, and riveting them to the cleats. They should also be cut a quarter of an inch, or more, longer than the length of the case, to permit of them bending over the bulge or crown which is formed.

Lids for fruit cases are as important as the cases themselves. Unsuitable lids have been one of the causes of slack packing with Victorian-Oranges and Apples, and they are an embarrassment to the packer, because they prevent him packing the fruit to the correct height.

Any lid which cannot be nailed over a 2-inch bulge without a press is not suitable to be forced over perishable fruit. The function of a lidding press should be to facilitate the work, not to crush fruit down with unresisting

The side boards of export cases should be just the opposite, viz. thick, unresisting and strong. A packed case of fruit with a bulging side is a calamity; the objective of the packer is defeated, and the fruit is severely bruised in the stacks.

In the Apple box corrugated cardboards are used to prevent chafing of the fruit by the laths, but as these are detrimental to the shipping of Oranges, the inside of the latter cases should be smoothly dressed, the edges of the laths bevelled, and the centre partition board chamfered.

During the last few years, the interstate trade with Tomatoes has rapidly increased and it is recommended that half-cases lined with white lining paper, and careful color grading, be adopted. These details, together with packing charts for the various fruits and salient points from the regulations concerning grading, are attached.

PACKING CHART FOR APPLES IN THE CANADIAN CASE.

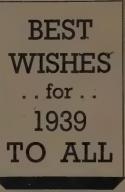
18 x 11½ x 10½ inches, inside measurements.

The "Straight" Method of Diagonal Packing.

Count & Size, ins. Pack. Layer.	Layers.
270 3—3 8 x 7	6
€252 3—3 × 6 × 7 × 7 × 6 × 6	. 6
2½ 234* 3—3 7 x 6	6
216* 3—3 6 x 6	- 6
198* 3—3 6 x 5	6
C180* 5 x 5	6
21 175* flat 3-2 Apples 7 x 7 only	5
163* 3-2 , 7 x 6 ,	. 5
162* 3—3 5 x 4	. 6
2 150* 9 3 3-2 1 1 6 x 6 2 1 3 4	5
23 (138* 3—2 6 x 5	. 5
23 \ 125* \ 3\tag{2} \ \ \ \ 5\times 5	5
(113 3-2 5 x 4	. 5
3 { 100 3—2 4 x 4	- 5,
7 96 2-2 6 x 6	. 4
31 88 3—2 4 x 3	5
88 2—2 6 x 5	. 4
* The figures marked * are the counts recomme	nded for

Remarks.

To obtain correct height the following rule should be observed:-The smallest Apples intended for the 3-3 and



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127

Approxi-

Size.

3-2 packs should be packed a little more tightly than usual, while the largest Apples intended for these packs should be packed more loosely than usual.

With Jonathans the 198 count will include almost equal numbers of large 21 in. and small 21 in. Apples, likewise the 150 count will include almost equal numbers of large 2½ in, and small 2¾ in. Apples. With flat varieties these counts are 21 in. and 23 in. respectively.

Note.—The nett weights of all varieties of Apples exported from Victoria will vary between 43 lb. and 48 lb., according to count and variety. (If Jonathan 43 lb. to 45 lb.) If sizes are adopted with some varieties the 198 and 150 counts will be found underweight.

Special Note.-The correct adjustment of an efficient fruit-grading machine will automatically produce in rotation in its bins each count as shown on this chart. Some

Remarks.

machines produce two counts per bin.

er. ers.

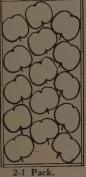
mate. Pack. Lay- Lay- Total.

CHART FOR PACKING APPLES IN THE AUSTRA-LIAN DUMP CASE.

Inside Measurements, 18 Inches Long, 82-3 Inches Wide, 144 Inches Deep.







Showing the method of placing Apples in the bottom layer of 3-2, 2-2 and 2-1 pack.

Correct height is obtained by adopting the following rule:—All sizes are packed firmly with the exception of .2½ inch with 175 Apples, small 3 inch with 108 Apples, and 3½ inch with 53 Apples; these should be packed more loosely than usual.





THE 3-2 PACK IN THE DUMP CASE. This illustration shows how to commence the Inis indistration shows how to commence the first and second layers. Note the angles at which the Apples are placed. The numbers show the commencement of the second layer with the Apples resting on the pockets or spaces caused by the way the fruits beneath are placed.





THE 2-2 PACK IN THE DUMP CASE. Left.—The numbers show the angles at which the Apples should be placed in the first and second layers.

Right.—Finished can of 23-inch Apples, 6 x 5 layer, 6 layers. Total 132.

PACKER.

Interstate Markets:-When Apples are packed from cool storage for interstate markets they are particularly susceptible to bruising. The fruit should not be packed too tightly or too high. Cases should be lined with corrugated cardboards at top, bottom, and sides. Correct height is obtained by adopting the following rule:--

All sizes are packed firmly with the exception of $2\frac{1}{2}$ -inch with 175 Apples, small 3inch with 108 Apples, and $3\frac{1}{2}$ -inch with 53 Apples; these should be packed more loosely than usual.

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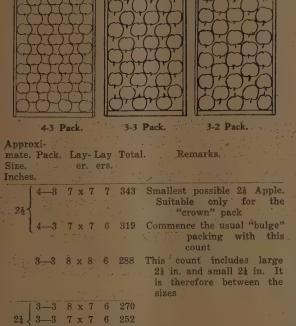
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CHART FOR PACKING YATES APPLES IN THE CANADIAN CASE.

18 x $11\frac{1}{2}$ x $10\frac{1}{2}$ inches, inside measurements. (Packing to counts and not to sizes eliminates underweight cases in the export trade.)

The "straight" method of diagonal packing.



This count includes large 21 in. and small 2½ in. It is therefore between the sizes

The smallest possible 23 in.

The smallest possible 3 in.

Note.—The net weight of Apples will vary between 43 lb. and 46 lb. if counts are adopted. The 216 and 288 counts will be found underweight if sizes are adopted.

Apple

Apple

198

 7×6 6 6 216

6 x 5

6 x 6 5 $6 \times 5 = 5$ -2 5 x 4 5 113

3-2 5 x 5 5 125

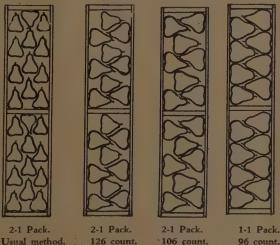
SPECIAL PACKING CHART FOR JOSEPHINE PEARS IN THE LONG BUSHEL CASE.

26 x 6 x 144 Inches, Inside Measurements, Clear of the Division.

This chart is recommended when Josephine Pears are being packed for export in the Australian Long Bushel Case.

Size.	Pack.			Total.	Remarks.
21	21	5 x 5	8	240	
	2—1				
	2—1	4 x 4	8	192	Pack a little more loosely than usual
21	2-1	4 x 3	8	168	Pack a little more loosely than usual
	2-1	3 x 3	8	144	Pack a little more loosely than usual
23	2-1	3 × 3	7	126	Stalks face sideways
	2—1	3 x 2	7.	106	Stalks face sideways
. 3	2-1	3 x · 2	.6	90	Normal pack
	1-1	4 x 4	6	- 96	Stalks face sideways
	1-1	4 x 3	6	84	Stalks face sideways

A complete observance of the methods of packing shown in the diagram is essential for satisfactory results.



Showing the method of placing Josephine Pears in the bottom layer of the long bushel case for the 2-1 and 1-1 packs. For the 126, 106 and 96 counts the stalks face sideways.



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PEAR PACKS FOR THE 8½-INCH STANDARD PEAR CASE.

Inside Measurements, 18 Inches Long, 11½ Inches Wide, 8½ Inches Deep.

Sizing in the well-known gradations of ½ inches is the cause of faulty packs. Sizing for each count should be uniform. Packing to count and not to size is recommended for adoption. Approximate sizes are shown; these vary according to the type of Pear and are only intended as a guide to the operative.

	Count.	Pack.	Layer.	Layers.	Remarks.
	245.	4-3	7×7	5	Ì
	228	4-3	-7×6	5 :	
	210	4-3	6 x 6	5.	Approx. 2 in.
	193	4-3	$.6 \times 5$	5	2 in. if Bosc.
	180	3-3	6 x 6	5	Approx. 2½ in.
	165	3-3	6×5	5	24 in. if Bosc.
	150	3-3	5×5	5	Approx. 2½ in.
	135	3-3	5 x 4	Б.	2½ in. if Bosc.
ç	120	3-3	4×4	5	2½ in. if Bosc. Approx. 2½ in.
ţ	120	3-2	6×6	.4	
	105	3-3	4 x ⁻ 3	5	Special count for Bosc 25 in.
	110	3-2	6×5	4	23 in. if Bosc.
	100	3-2	5×5	4	
	90	3-2	5 x 4	4:	Approx. 3 in.
	80	3-2	4×4	4	
	70	3-2	4×3	4	Approx. 31 in.

Warning.—Unless lids are thin and suitably flexible, the fruit will become severely "case marked" in the lidding operation. Lids should be cut at least 1 inch longer than the sides of the case. Hemlock and spruce lids may be soaked in water before lidding.

The nett weight will vary between 44 and 49 lb., according to variety and count.

PACKING CHARTS FOR PACKHAM'S TRIUMPH AND BEURRE BOSC PEARS IN THE LONG BUSHEL CASE.

26 x 6 144 Inches, Inside Measurements, Clear of the Division.

PACKHAM'S TRIUMPH.

Approximate. Pack. Lay-Lay-Total. Remarks. Size. er. ers.		
$ 2 \left\{ \begin{array}{cccccccccccccccccccccccccccccccccccc$	w.	Cole,
2½ 2—1 5 x 4 8 216 Normal pack.		

21	2—1 2—1	4 x 4 4 x 3	8	192 168	Normal pack Normal pack
21/2	2-1 2-1	3 x 3 5 x 3	8 7		Pack more loosely than usual Normal pack (sometimes 2§ and small 2§)
23	2—1 2—1	3 x 2 3 x 2	7	106 90	Pack more loosely than usual Normal pack (see special note)
3.	1—1 1—1	4 x 4 4 x 3	6	96 . 84	Stalks face sideways Stalks face sideways
31	1-1	3 x 3	6	72	Stalks face sideways

Special Note.—Large 2% and small 3-inch are frequently mixed and packed as 96 count.

BEURRE BOSC.

Appro	oxi				
mate.	Pack.	Lay- L	ay-	Total	. Remarks.
Size.		er. e	rs.		
21	2-1	5 x 4	8	216	Normal pack
21/2	2-1	4 x 4	8	192	Normal pack
	2-1	4 x 3,	8	168	Normal pack Normal pack
21/2	2-1	3 x 3	8	144	Normal pack
	2—1	3 x 2	8	120	Pack more loosely than usual
23.	21	3 x 2	7	106	Pack more tightly than usual
f	1-1	4 x 3	7	98 7	Stalks face sideways (see special note) Stalks face sideways
ĺ	11	4 x 4	è	96	Stalks face sideways
3	1—1	4 x 3	6	84	Stalks face sideways
		3 x 3			
31	1-1	3 x 2	6	60	Stalks face sideways

Special Note.—Shorter types of Bosc Pears predominate in some districts more than in others. One of the packs shown will accommodate them. The packer will readily understand that sizes ranging around 2% to 3 inch in diameter are difficult to pack satisfactorily. (Unfortunately a multiple layer container has not yet been devised to enhance the presentation of all sizes of fruit.) The packs shown for these difficult sizes are recommended for adoption after careful consideration of faults of a number of inferior packs which have been eliminated.



CHART FOR PACKING ORANGES IN THE CITRUS CASE (EXPORT).

24in. x 11½in. x 11½in. inside measurements, clear of the division.

			2.04		
Approximate					
Size,	Pack.		Layer.	Layers.	Total.
Inches.					
22	33		4×4	6	288
25	33		4·x 3	6	252
23	33	, 1	3. x 3	7 6	216*
23	32		4 x 4	5	200*
_ 3	32		4 x 3	5	176*
31	3-2		3 x 3	77 77 5	150*
31	3—2		3 x 2	5	126*
38	2-2		4 x 3	4	112
31/2	2-2		3 x 3	4	- 96
3\$	2-2		3 x 2	4,00	80
34	21		3 x 3	4.	. 72

*Indicates the best selling sizes or counts to pack for export.

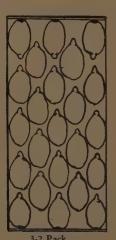
Hints for the Packer.

Correct Height.—The height is regulated by the size of the "pockets" or spaces between the fruit. Tighten or loosen the pack to obtain this objective.

The Bulge.—Level layers are the cause of damaged Oranges in the lidding operation. The bulge is formed by loosening the pack slightly at each end of the bottom layer and "nesting" the Oranges a little more deeply than the others in the larger spaces thus formed. The fruit is then gently pressed down at the ends of each layer, but not in the centre. The bulge should be $2\frac{1}{2}$ inches or even more above the top of the case at the centre, but not more than about an inch at each end.

Special Grade.—Blemished fruit is not permitted. The tolerance for human error is as follows:—Not more than 2½ per cent. of the surface of any Orange shall be affected.

Standard Grade.—Not more than 10 per cent. of the surface of any Orange shall be affected.





Plain Grade.—Not more than 25 per cent. of the surface of any Orange shall be affected.

Sweating.—Oranges must be sweated for a period of at least seven days.

Variety.	Branding	Abbrev	iations		eviation.
Washington	Navel .				
Thompson's					
Valencia La					
Mediterrane Seedling	an Sweet	• • • • • • • • • • • • • • • • • • • •	· · · · ·	. Med.	Sweet Sdlg.

CHART FOR PACKING ORANGES IN THE AUSTRALIAN DUMP CASE.

Inside Measurements, 18 inches long, 8-2/3 inches wide, 141 inches deep.

Count.	Pack.	Layer.	Layers.	Remarks.
248	3-2	6 x 5	9	Smallest possible 21 inch
225	3-2	5 x 5	9.	28. Pack more loosely than usual.
200	3-2	5 x 5	8	Slightly under 22
182	2-2	7×6	7	Slightly over 2½
168	2-2	6 x 6	.7	Slightly under 23
154	2-2	6 x 5	7	24
140	2-2	5 x 5	7	28 July 5 1
126	2-2.	5 x 4	. 7	Smallest possible 3 inch
112	2-2	4 x 4	. 7	33. Pack more loosely than usual
96	2-2	4 x 4	6:	31. Pack more tightly than usual
84	2-2	4 x 3	6	38 to 1 kg = 12 kg 15 kg 16 e e c 1
. 75	2-1	5.x 5	-5	31 1 () A / () () () () () ()
68	2-1	5 x 4	. 5	38 Muniting (1921)
60	2-1	4×4	5	32
20	0.8	1 44 9	· E	97.



Lemons packed in the dump case for local market.

NOTE.—The last Lemons in each layer should be reversed in order that the button and not the point is against the

FRUIT WORLD ANNUAL.

CHART FOR PACKING LEMONS IN THE AUSTRALIAN DUMP CASE.

Inside Measurements, 18in. long, 8-2/3in. wide, 141in. deep. (See illustration on opposite page.) Lemons for Interstate Trade.

If the following market requirements are adhered to, many disappointments may be avoided:-

- 1. Do not send Lemons from Victoria to an interstate market unless each Lemon is wrapped in sulphite tissue wrapping paper.
- 2. Do not send Lemons larger than the 140 count (25

inches), or smaller than the 248 count (2 inches).

- 3. Make sure the counts are accurate before branding the
- 4. Large, rough or corrugated Lemons are not wanted
- in interstate markets.

 5. All cases for the interstate trade should be wire-tied to prevent loss and breakages during transport.
- 6. The best time to consign Lemons to Queensland is from the middle of October until March.

Note.—The last Lemons in each layer should be reversed in order that the button and not the point is against the end of the case.

Approximate					
Size, inches.	Pack.	Layer.	Layers.	Total.	Remarks.
13	33	6 x 5	10	330	Small
	33	5 x 5	9	270	Large
	3—2	6 x 6	9	270	Large .
2	3—2	6 x 5	9	24 8	Small to medium
	32	5 x 5	9	225	Medium to large
21/4	3-2	5×4	9	203	Small. Pack more loosely than usual.
	32	4, x. 4	9	180	Medium. Pack more loosely than usual
	32	5 x 4	8	180 .	Medium. Pack more tightly than usual
	3—2	4×4	8	100	Large
2½	2-2	6 x 5	7	154	Small
	2—2	5×5	7	140	Medium
	2-2	5 x 4	7	126	Large (4) / / /
23	2-2	4 x 4	7	112	Small to medium
	2-2	4 x 3	7	98 1	Medium to large
3	22	3×3	7	84	Small to large
	22	4 x 3	6	84	Small to large

Special Note.-With small 24-inch Lemons the packer is sometimes tempted to bring the 5 x 5 layer with eight layers into use; the fruit will be two low in the case. The fault can be remedied by making the "layer count" 5 x 4. instead of 5 x 5. This procedure permits nine layers in the case (instead of eight) with a total of 203 Lemons, and the fruit will be raised to the correct height.

Approxi-

CHART FOR PACKING GRAPEFRUIT IN THE CITRUS CASE (EXPORT).

Inside Measurements, 24 x 11½ x 11½ inches, clear of the division.

Appro	X1-			1	
mate.	Pack.	Lay-	Lay-		Remarks.
Size.		er.	ers.		
Inches	S.				
31/2	3-2	3×3	3 5	150	The smallest size for export
38	32	3 x 2	2 5	126	
31/2	2—2	3 x 3	3 5	120 /	Stylar ends face upwards Pack more loosely than usual
35	2—2	1 - 5	2 /	112	Sometimes small 2½
	2-2			96	Domedines Shian 2g
	2-2				Sometimes small 4-inch
	22				Stylar ends face upwards
	2-2				
41	21	3 x 3	3 4	72	
41	2-2	2 x 2	2 4	64	
43	21	3 x 3	3 3	54	
43	2-1	3 x 2	2 3	46	
5	2-1	2 x 2	2 3	36	
51	2-1	2 x 1	1 3	28	

Note.—Where not otherwise indicated, the fruit should be packed on its cheek to ensure efficient height in the

It will be noticed that while the counts are in rotation the layer counts are not so. This is caused by the stylar ends facing upwards in some of the packs.

The bulge should be 2 inches, or even more above the top of the case at the centre, but not more than about an inch at each end. The bulge is formed by loosening the pack slightly at each end of the bottom layer and "nesting" the fruit a little more deeply than the others in the larger spaces thus formed. The fruit is then gently pressed down at the ends of each layer, but not in the centre.

CHART FOR PACKING GRAPEFRUIT IN THE AUSTRALIAN DUMP CASE.

Inside Measurement, 18 Inches Long, 82/-3 Inches Wide, 144 Inches Deep.

mate. Pack. Lay- Lay- Total. Remarks. Size. er. ers. 2-2 5 x 4 7 126 Cheeks to side of case like Oranges. 2-2 4 x 4 7

Stylar end to side of case. 4 x ,4 6 96 Stylar end to side of the case. 6 x 5 Cheeks to side of case like Oranges. Cheeks to side of the case 31) 2-1 5 x 5 5 75 35) like Oranges.

33 5 x 4 5 68 Stylar end to side of the case 4×4 60 Stylar end to side of the case 4×3 Stylar end to side of the case 41)

41 7 3 x 3 Stylar end to side of the case 48

2-1 3 x 2 5 38 Stylar end to side of case.

Pack loosely

Note .- In order to maintain the maximum size that will fill the cases properly with each count, it is very important that the fruit in each of the packs are placed according to the manner set out in the "Remarks" column. If this is not adhered to, the Grapefruit will not come to the desired height in the case when the packing is finished.

Herbert Wilson Pty. Ltd.

Wholesale Fruit Merchant and Growers' Agent

AGENTS for the

Murray Citrus Growers' Association, South Australia.

Victorian Central Citrus Association.

South Australian Tomato Growers' Association.

South Australian Celery Growers' Association.

Geraldton Tomato Growers' Association, Western Australia.



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41

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Chart for Packing Tomatoes in the Long Bushel, Half Dump, and Standard Fruit Cases

THE BEST BRANDS OF TOMATOES IN THE MARKET ARE NOW GRADED AND PACKED LIKE ORANGES.

CHART FOR TOMATOES IN THE LONG BUSHEL CASE.

26 Inches x 6 Inches x 144 Inches, Inside Measurements Clear of the Division.

Approximate Approximate	
Size, inches. Pack. Layer. Layers. Total.	Remarks.
2—1 . 7 x 7	Angle pack
2½ 2—1; 7 x.6 . 7 274	Angle—small to medium 21 inches
$2-1 \qquad 6 \times 6 \qquad 7 \qquad 252$	Angle—medium to large 21 inches
2½ 2—1 6 x 5 7 232	Angle—average 2½ inches
2½ 2—1 5 x 5 6 180	
$2-1 - 7 5 \times 4 3 3 6 3 162$	Angle—medium to large 22 inches
3 2-1 4 x 4 6 144	Angle—average 3 inches. Pack more loosely than usual.
그 활성하다 주요 속에서 가장 작가 있다면 되는 것은 사람이다.	Reverse the first two Tomatoes
34 1—1 5 x 5 6 1 120	Angle—average 34 inches. Pack more loosely than usual
3½ 3½ 1—1 6 x 5 3 5 5 3 110	Angle—small to medium 3½ inches
$11, \frac{1}{2}, \frac{1}{2}, \frac{1}{4} = \frac{1}{2}, \frac{1}{$	Angle—medium to large 32 inches
33 2—10 3 x 3 x 5 5 90	Stylar to size—average 34 inches

CHART FOR TOMATOES IN THE HALF STANDARD CASE.

Inside Measurements, 18 Inches Long, 51 Inches Wide, 111 Inches Deep.

Approximate	2010 Y	Tanan Tanan	L. Action of the Remarks.
Size, inches.	Pack.	Layer. Layers. 100	i. (Alt. 1) Remarks.
24	2-1	9×9	Pack more loosely than usual
	2-1	9 x 8	Pack more tightly than usual
		8 x 8 14	Normal pack
	2-1	8, x 7-1 / 6 6 134 13	Normal pack
	2-1	7×7	Normal pack
	-21	7×6 6×-11	Pack more loosely-than usual
23	2—1	6 x 6 6 . 10	Five layers if globe shape
	2-1	7 x 6. 9	Stylar ends face sides of case (pack tightly)
후 한 학생 학생 있다.	2—1	$6 \times 6 \times 10^{-5}$ 5	Stylar ends face sides of case (pack tightly)
3	2-1	6 x 5 5 8	Stylar ends face sides of case (pack tightly)
and over	1-1	8 x 8	Pack more tightly than usual
	1-1	8 x 7. 1 4 5 7 6	Five layers if globe shape
	1-1	7 x 7 / 4 5 50	Five layers if globe shape
62.	11	8 x 7 4 66 7 x 7 4 55 7 x 6 4 55	Five layers if globe shape
	1-1	6 x 6 4 4	Five layers if globe shape

Branding.—Brand initials, surname, and address, or registered brand of the producer, also quality and size of the Tomatoes, such as:-T. JONES, ECHUCA. Semiripe, 3 INCHES AND OVER.

Melbourne Markets.—Any stage of maturity from the "PINKING" STAGE UNTIL THREE PARTS COLORED. The former should be branded as SEMI-RIPE and the latter branded as RIPE. Tomatoes that are fully colored

when harvested seldom give satisfaction to the buyer unless grown within reasonable proximity of the market.

Interstate Markets.—Any stage after the green color has changed to a whitish tint, and THE PULP IS DE-FINITELY SUFFUSED WITH PINK until the EARLY PINKING STAGE. The former should be branded as SEMI-RIPE and the latter branded as RIPE. GREEN TOMATOES ARE USELESS ON THE MARKET; they are only fit for pickles.

It is not so much the being exempt from faults, as the having overcome them, that is an advantage to us everywhere in life, the true question is, not what we gain but what we do.—Carlyle.

In using your particular gifts for the good of others there is a joy which you cannot have, and never will have in any other way against all experiences, the nature of things works for truth and right for ever.

PACKING TOMATOES-(Continued).

CHART FOR HALF DUMP CASES MADE ON THE WIDE SYSTEM.

Inside measurements, 18 inches long, 8-2/3 inches wide,

	4.8	menes deep.
Approximate		
Size, inches.	Pack.	Layer. Layers. Total.
	3—2	9 x 9 4 180
	3—2	9 x 8 4 170
21	3-2	8 x 8 4 160
	3-2 /	8 x 7 4 2 150
2½	3—2	7 x 7 4 140
	2—2	9 x 9 4 1 144
	3—2	7 x 6 4 130
	2-2	1 9 x 8 1 1 4 1 4 1 36
	(3-2	6 x 6 4 1 120
	12-2	8 x 7 4 120
	22	5, 8 x 8 1 5 4 6 1 128
	22	7 x 7 4 112'
23	2-2	7 x 6 4 104
	(2-2	6 x 6 + 4 4 1 2 4 96
	2-2	8 x 8 3 96
	22	8 x 7 3
	2-2	7 x 7 1 3 3 1 84
3	2-2	7 x 6 3 78
	2-1	9 x 8 77 3 77
	(2-2:	-6 x 6 3 72
	2-1:	8 x 8 3 72
31	2—1	8 x 7 / 3 68
	2-1	7 x 7 63 63

Counts numbers 144, 136, 128, 96 and 77 are flat shaped varieties.

Counts numbers 130, 136, 120, 112, 104, 96 and 63 should be packed more loosely than other counts shown in above tables.

CHART FOR HALF DUMP CASES MADE ON THE NARROW SYSTEM.

Inside Measurements, 18 inches long, 74 inches wide, 8-2/3

	1	nches deep.		
Approximate				
Size, inches.	Pack.	Layer.	Layers.	Total.
	3-2	7 x 6	6 1 24	195
	2-2	9 x 9	5 5	. 180
	2-2	9 x 8	5	. 170
21	2-2	8 x 8	. 5	160
	2—2	8 x 7	1 0 B 60	150
2½	22	7 x 7	- 5	140
	2-2	7 x '6	5	~: 130 ·
	2-2	6 x 6	- 5	120
	2-2	6 x 5	2 1. 5° M	110
23	2-1	9 x 8	4	. 102
	2-1	· 8 x 8	4	1 96
	2-1	8 x 7	4	10 90
	2-1	7 x 7	4	84
3	2-1	7 x 6	4	78
	21	6 x 6	4. 4.	72
31	2-1	6 x 5	4 .	66
	2—1	5 x 5	4	60
31	2—1	6 x 5	3	50

Counts numbers 195, 130, 120, 110, 66 and 60 should be packed more loosely than other counts.

Count number 102, pack more tightly than usual.

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As will be readily understood in the wide range of soil and climatic conditions of this island-continent: fruits and vegetables of all kinds are produced—from those of the tropical regions of Queensland to others suited to the cool mountain slopes and valleys of Tasmania.

In the statistical pages of this "Annual" are given the figures showing the area under fruit and the quantities of the different fruits produced in each State.

Here in this marketing section, figures are given showing crop movements. These figures will be perused with great interest, revealing as they do the importance of those great industries.

NEW SOUTH WALES

Interesting figures are to hand from the State Marketing Bureau of the N.S.W. Dept. of Agriculture, as follow:-

Return of Fruit and Vegetables Imported into New South Wales by Land and Sea During Year Ended June 30, 1938.

Fruit.

	Tropical	Bananas. Oth Tropical Fri	uit Half-	Totals. Packages.
Queensland Victoria	200,241	134,526	3,070† 519,236	1,027,073
Tasmania	in the second	1,53	2,628 - 6,449	1,539,077 44,616
West Australia				20,833
Total	200,420	136,276 2,14	6,880 779,539	3,263,115

Note: *Tomatoes arriving from other States with the exception of Victoria, are mostly in half-bushel cases. Consignments from Victoria are principally in bushel cases. In order that a uniform unit might be quoted, Victorian arrivals have been converted to the basis of estimated half-bushel cases.

† In addition, 25,948 trays of Strawberries were received.

Vegetables:

*					Cues. and		
	Totatoes.	Onions.	Swedes.	Pumpkins.	Chillies.	Vegs.	Totals.
State.	Bags.			Bags. Tons.		Pkgs.	Packages.
Queensland	1,839	32,349	22	97,360 1,268 ¹ 5	2,260 ()	72,902	*206,732
Victoria	293,342	223,733	4,439	654	24.	72,361	594,553
Tasmania	1,126,701	11 1 34 4	522,130			38,475	1,687,340
South Australia	7 174	3 473	·	The same of the sa	· · · · · · · · · · · · · · · · · · ·	80,024	90,671
West Australia	7,069			أثيهم كالأاء	: الأ 1/دي	·	7,069
m-1-1	1 490 105	050 500	E96 E01	00 014 1 0001	0.004	969 7769	0 506 965
Total	1,430,125	209,089	020,091	90,014 1,200 %	2,204	203,702	2,586,365

*1,26815 tons

Comparing the foregoing with the year ended June 30, 1937, it is noted that in this period the total number of packages of fruit was 2,411,136, and vegetables 1,879,312. Thus, in the period ended June, 1938, there was an increase of 851,979 packages of fruit imported into N.S.W. and 707,053 packages of vegetables. Among the principal increases shown are:

Fruit and Vegetables Imported into N.S.W.:

To	June	30	1937	_

Fruit	(from	Tasmania)	 	 	1,009,299
Swedes	(from	Tasmania)	 	 	28,733

-To June 30, 1938-

Fruit	(from	Tasmania)	 	 	1,532,628
Swede	s (fron	n Tasmania)	 	 	522,130

It will be observed, of course, that the figures are made up to June 30 of each year, and comparisons will be made accordingly.

Exports of Fresh fruit and Potatoes to other States from New South Wales during the year ended June 30, 1937.

State Exported to. Pineapples (tropical cases).	Bananas (tropical cases).	All other fruit (cases).	Tomatoes (half cases).	Potaoes (bags).
Queensland		426,592	8,722	79,093
Victoria 285	467,199	199,954	4,999	
Tasmania 2,810	20,096	13,529	852	44
S. Aust.	159,656	2,261	. 6	
W. Aust.	1 1 1		7 · 1	
Elements Design a A	L. Wain T	January Town	- 00 101	10

 Exports During the Year Ended June 30, 1938.

 Queensland
 —
 —
 335,586
 8,237
 102,748

 Victoria
 —
 373,967
 109,828
 6,019
 —

 Tasmania
 3,552
 32,945
 9,897
 778
 90

 S. Aust
 131,095½
 2,895½
 1
 —
 —

 W. Aust
 —
 —
 —

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S.A. Tomato Growers' Association.
S.A. Celery Growers' Association.
Committee of Direction of Fruit Marketing (Q'id.).
Geraldton and District Tomato Growers' Association

Northern Districts and Geraldton Tomato Growers'
Association (W.A.),
Banana Growers' Federation of N.S.W.

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SPECIAL NOTICE TO FRUITGROWERS

All Members under Fidelity Bond In response to numerous requests from growers for information as to who are members of the

Wholesale Fruit Merchants' Association of Victoria the following list is given. All are members of the above Association, and are registered firms carrying on business in the

WHOLESALE FRUIT MARKET, MELBOURNE.

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H. M. WADE & CO. (21). DAVID SMITH PTY, LTD. (3). SILBERT SHARP & DAVIES PTY. LTD.

(17).WATKINS FRUIT COMPANY PTY. LTD (5) P. A. PATRIKEOS (36).

Correspondence is invited by the Association.

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Office: 21 Wholesale Fruit Market, Queen Street, Melbourne. Phone: F 4866.

Statement of Principal Imports of Fresh Fruit, Plants, etc., into Victoria from other States for Twelve Months:

Decem	ber 1, 193'		er <mark>30, 193</mark> 8				
	N.S.W.	Qld.	S. Aus.	Tas.	W. Aus.		Total.
	Pkges.	Pkges.	Pkges.	Pkges.	Pkges.		Pkges.
Apples	· · · · ·	,		14,193	5		14,198
Apricots	9,781		Aug. 14. 8				9,789
Bananas	- 415,930	62,891	100 Marie				478,821
Barley San Communication of the Communication of th			383,423	28,030	_		411,453
Beans	23,627	35,781	340	23			59,771
Beans, Dried	´ —			5,187			5,187
Blackberries	_			1,089	_		1.089
Black Currants	_			1,589			1,589
Celery			- 65,932	_,			,65,932
Cherries	27,479	·	7.353	5			34,837
Cucumbers	10,393	8,343	849				19,585
Dried Fruit	5.741	3 .	83,105	2.077	3,203		94,129
Grape Fruit	189	886	110		. 0,200		1,185
Grapes	100	88	6.143		2		6,233
Kernels	147	1.169	. 0.00#	_	N.T.98		3,751
Lemons	7,030	48	2,337		14,1,00		7,559
Maize	392	123,912	101		_	• •	124,304
Mandarins	51.047	8,472	351		_	• •	59,870
	773	3,079	144		. —	• •	3,996
Marrows	122	150	429	22		• • •	723
Nuts				24	_	• • •	
Onions		711	5,929	_		• •	5,929
Oranges	28,081		288,906			• •	317,698
Papaws	32	6,619	7 j 5 —	_		• •	6,651
Passion Fruit	5,979	2,527	The second second	_	598	• •	9,104
Peanuts		18,858			N.T.669		19,527
Poas	3,253	261	4,693	1,514	_		9,721
Peas, Dried	_	ر سڪ	1,588	4,928	_		6,516
Pineapples	-	143,789					143,789
Potatoes		762		3,666	42,065		58,192
Pumpkins		17,530	. \ 141	·	200		17,871
Rice	205,496		 -	_	_		205,496
Seed,	9,196	17,496	7,934	809	2,766		38,201
Swedes			_	62,427			62,427
Sweet Potatoes	2,938	10	100	_			2,948
Tares	_	_		1,867	_		1,867
Tomatoes	989	1,730	133,840	13	140,774		277,346

Statement of Principal Export of Fresh Fruit, Plants, etc., from Victoria to other States for 12 Months

11 0110 1 000001 000 00 0011001	
(October 1, 1937—September 30, 1938.) Apples, bus. 3,931 Oranges, bus. 2,315 Beans, bus. 77 Onions, bags 3,266	Western Australia. (October 1, 1937—September 30, 1938.) Onions, cwt 32,728 Dried Fruit. Potatoes, cwt 6,094 Apples, Pears,
Bulbs, pkgs 490 Potatoes, bags 48,821	Grapefruit, cases 46 Peaches, etc., lb. 16,590
Cabbages, bags 46 Pears, bags 149	Nuts, cases 37 Raisins, lb
Grapefruit, bus. 158 Plants, pkgs. 682 Tasmania.	G
(August 1, 1937—July 31, 1938.)	Frunes, 10. 4 . 11,890
Citrus fruit, bus. 79,563 Tomatoes, bus. 23,126	Other, lb 14,987
Bananas, bus 26,175 Cucumbers, bus. 1,219 Pineapples, bus. 3,155 Melons and	Total, lb 329,779
Peaches, bus 743 Pumpkins, doz 1,007	New South Wales.
Pears, bus. 1,850 Cauliflowers and	(October 1, 1937—September 30, 1938.)
Apricots, bus. 619 Cabbages, cwt. 1,017 Cherries, bus. 1,242 Onions, bags 10,389 Grapes, bus. 13,544 Other Nuts, cwt. 349 Vegetables, cwt. 4,416	Fresh Fruit, pkgs. 375,140 Do. (loose), tons 5 Tomatoes, pkgs 121,230 Plants, pkgs 2,388
Queensland. (Particulars not available.)	Potatoes, pkgs 317,294 Loose Plants Onions, pkgs 242,371 (approx.), pkgs. 6,382
(Larticulars not available.).	Ontono, page 225,012 (approx.), page. 0,002

FRUIT WORLD ANNUAL.

TASMANIA.

P OR THE SUCCESS of the Apple industry, Tasmania depends on exports to overseas markets and shipments interstate.

Overseas export figures are shown in other pages. In this section interstate trade is dealt with. The following figures were furnished by the Chief Horticulturist (Mr. P. H. Thomas), Dept. of Agriculture, Hobart.

"Interstate Fruit Shipments.

July 1, 1937—June 30, 1938.

						Ulver-		Beauty	
Date.	Hobart.	Port Huon.	Port Cygnet.	Launceson.	Devonport.	stone.	Burnie.	Point.	Total.
1937.									
July	77,913	92,278	37,441	4,632	6,421		84		218,769
August	73,670.	76,186	23,848	9,563	2,690	15		2,759	188,731
September	57,396	72.735	24,613	3,545	2,319				160,608
October	31,577	56,377	10,434	5,177		_		3,873	107,438
November .	28,109	41,010	10,606	8,023	656	_		6,786	95,190
December	32,567	7,451	2,406	6,056	* 8				48,488
1938.									
January	4,110			1,529				— `	5,639
February	33,187	A* 1 - 1 - 1	, 4 - J <u>Lan</u> . 4 -	12,027	8,918	_	_		54,132
March	97,328			96,019	28,679	13	817	—	222,847
April	186,618	28,540	10,630	102,024 -	31,567	17	3,079		362,475
May	100,794	. 105,429	45,653	24,959	11,176	13	1,698	—	289,722
June		82,026	29,751	2,289	2,574	8	_	,	211,426
	818,047	562,032	195,382	275,843	94,999	66	5,678	13,418	1,965,465

Summary.

Hobart	818,047
Port Huon	562,032
Port Cygnet	195,382
Launceston	
Devonport	
Ulverstone	
Burnie	5,678
Beauty Point	
	4

1,965,465

Fruits Imported into Tasmania—Financial Year 1937/38.

	N.S.W.	Vic.	Qld.	S.A.	Totals,
Citrus Fruits, bus .	7,487	74,075	14	4,537	86,113
Bananas, bus	22,962	23,643	287		46,892
Pineapples, bus	. 3,545	-2,826	494		6,865
Peaches, bus		743	_	132	875
Apples, bus	$\mathbb{N}_{\mathbb{R}^n} \setminus \mathbf{p}$	146	-		147
Pears, bus	75	1,854	-	100	1,929
Apricots, bus	36	111			147
Passion Fruit, bus	566	839			1,405
Grapes, bus,	860	13,473		3	14,336
Fruit, other than					
specified, bus	408	391	5	16	· 820
Nuts, cwt	134	3461	97	37	6141
Tomatoes, bus	778	16,784	. 1	28	17,590
Cucumbers, bus	1,650	× 850 .	2	. 12	2,514
Melons,					
Pumpkins, doz,	2,707	1,000	500	·	4,207
Potatoes, bags	217	24	-		241
Cauliflowers and					
Cabbages, cwt	1	1,170	infin	S. 3-5.	1,171
Onions, bags	695	9,426		4,693	14,814
Veg., other than					
specified, cwt	. 374	4,3431	_	84	4,801

THE QUEENSLAND FRUIT INDUSTRY IN 1938.

Pineapples — Bananas — Papaws — Strawberries — Citrus — Tomatoes — Apples — Plums — Peaches — Grapes — Beans.

Production and Marketing.

ANY OUTSTANDING DEVELOPMENTS marked the progress of the fruit industry during 1938. Increased production over that of the previous year was the rule, with most of the fruits—to a very marked degree in Pineapples and notably also in Bananas, Tomatoes, Papaws, Strawberries and deciduous fruits. The Pineapple crop was 70 per cent. heavier than in 1937.

Pineapples.

The increased production was due to the very heavy plantings in the Spring of 1936 (as recommended by the Federal Government) and the application of scientific cultural principles. Pineapple crops were as follows:—

		198	37.	19	38.
Cannery.			1½ Bushe	el Cases.	
Summer		239,440		357,556	
Winter		119,095		331,165	
			358,535		688,721
Fresh Fruit Market	ts.				
Interstate		251,408		396,000	
Q'land, (approx.)				222,200	
			415,794		618,200
Fotal Production			774,329	_ 1	1,306,921

The anticipated demand abroad for the extra quantities of canned Pineapples did not eventuate, owing to several causes. Growers then made substantial financial sacrifices to enable the clearance in Australia, and this was accomplished.

Faced with increasing production, the industry recognises that to affect sales of fresh and canned Pineapple the price must be attractive to the consumer. To assist the industry during this period of adjustment to lower prices, an application has been made to the Federal Government for export assistance for 1938, 1939 and 1940.

Bananas.

Queensland Banana production is again on the up grade, the year 1938 seeing an arresting of the decline which has marked production since 1935. Comparative figures are:—

	1937.		1938.
Interstate	170	,085	250,825
Queensland— Age at the			
Bris. 9's	136,359	150,9	83
Bris. bunches, equiv.			
9's	86,526	106,2	64
Country Centre (est.)	60,000	80,0	00
	282	2,885	337,247
	452	2,970	588,072
	_		

Although increased quantities were available, prices remained good thoughout the year, in fact, in April, 30/-per case was realised for outstanding brands. The loss of statutory control over the marketing of N.S.W. Bananas is regretted.

In Brisbane, which has developed as an important case market since the installation of the C.O.D. and other scien-

tific ripening rooms, the market has always been the equal, and at times in excess of interstate parity.

Papaws.

The year 1938 witnessed record Papaw production: as so much is marketed locally, production is difficult to gauge. However, interstate railings were a record, and compare thus: In 1937, 14,598 cases (1½ bushels) were sent interstate, while the total for 1938 was 25,604 cases. Canneries in 1937 absorbed 172 tons; in 1938, the tonnage was 598. For the ripe fruit sent to canneries, growers were paid £10/10/- per ton, for green fruit for chutney £8/10/- per ton. The C.O.D. rendered good service in effecting marketing clearance. Growers taxed themselves to provide funds for research and publicity.

Strawberries.

Although the production of Strawberries made a record in 1937, this was exceeded in 1938. The following is the comparison:—

Fresh Fruit Markets. Fruit boxes:-

Brisbane		*202,000
Other Southern Centres Brisbane		9,620 *202,000
Sydney		376,558
	8,176	

The increased production was greater than factory requirements. The C.O.D. organised a distribution scheme—a 4-lb, box for 2/6. The C.O.D. also arranged for special consignments to Melbourne and Singapore.

TIM YOUNG & CO.

Pty. Ltd.

WHOLESALE FRUIT MERCHANTS

18 Wholesale Fruit Market

Tel., F 4321. Box 28a, G.P.O., Melbourne.

Cable Address: "TIYOUNG." A.B.C. Code, 5th Ed.

Growers can be assured of receiving the very best service and prompt returns.

Bankers:

E.S. & A. Bank Ltd., 225 Swanston St., Melbourne.

ACCREDITED AGENTS FOR: VICTORIAN CENTRAL CITRUS ASSOCIATION. MURRAY CITRUS GROWERS' CO-OP. ASSN. LTD. (South Australia).

COMMITTEE OF DIRECTION OF FRUIT
MARKETING (Queensland)
and other GROWERS' ASSOCIATIONS.

Consignments Solicited

A. E. PITT

Member of Wholesale Fruit Merchants'
Association of Victoria.
Accredited Agent for Growers' Organisations in
All States.

14 WHOLESALE FRUIT MARKET, MELBOURNE.

Consignments Solicited from all States.

Established 1893.

37

SHIPPING

Phone: F 5035.

PEA AND BEAN STANDS 13 & 14, VICTORIA MARKET.

Growers Will Receive Top Market Value and Prompt Returns.

Fidelity Bond Guarantee for £1,000.

Reference—E.S. & A. Bank, Elizabeth St. Branch, Melbourne.

The second of the contract of	J. 54. 65. 4. 5
Comparative distribution figures are:-	
1937.	1938.
Interstate Markets 4,691	16,485
Queensland 245,000	327,623

The C.O.D. successfully encouraged increased marketing in the southern States. Larger quantities were placed with factories and juice processors.

Tomatoes.

The annual increase which has characterised the Queensland Tomato crop over each of the last few years was maintained in 1938, as shown by the following comparative figures:—

	🗼 🖠 bushel	cases.
	1937.	
Interstate Marketings	399,677	497,690
Stanthorpe production	252,416	235,942
Other Queensland Sales (est.)	700,000	700,000
Factory	6,780	14,400

1,358,873 1,448,032

Queensland Tomatoes are now produced all the year

Marketing: The Spring crop of the Redlands and metropolitan districts is responsible for a heavy production, weekly interstate consignments reaching as high as 25,000 cases. The main portion of this crop is marketed in Sydney. In 1937, the growers stationed a special representative on the Sydney market to watch their interests during the marketing of their crop. So successful this proved, that it was repeated in 1938, a further innovation in 1938 being an agreement between the N.S.W. trade and the growers. Under this agreement, which operated from October 1 to November 30, Sydney and Newcastle agents agreed not to send canvassers into the Tomato districts south of the Brisbane River. The work of the growers' representative on the Sydney market last season paved the way for the ready acceptance of this agreement, by which growers were spared the irritation and expense of countless agents' representatives calling on them during their busy harvesting period, soliciting supplies. The unhesitating co-operation by the agents proved growers' belief that they themselves deprecated this practice of canvassing, and did not desire it provided they were all on an equal footing.

Deciduous Fruits.

The Stanthorpe district is the main source of production. The 1937-38 season was a record. Tonnages were: 1936-37, 17,816; 1937-38, 24,546 tons. The total number of packages received on the Brisbane market was the highest for 15 years, being 56,000 packages in excess of the previous record in 1932-33.

Comparative figures for main fruits:-

	1936-37.	1937-38.
Apples	. 158,411	294,238 bushel cases
Plums	102,233	211,706- half bushel cases
Peaches:	., 88,696	234,362 half bushel cases
Grapes	165,556	206,602 half bushel cases

Despite increased production the season was satisfactory for the growers.

In Apples, 35,526 cases were exported (10,000 more than in 1937), Granny Smith was the main variety exported; prices satisfactory. Markets in the near East are extending.

Plums: Export by the C.O.D. to Batavia satisfactory; extension forecast.

Grapes: Indications point to increased crops, particularly of Muscats, Exports unsatisfactory in 1938 and that

season was not good for the growers, due largely to the poor quality of the fruit.

Beans.

Since 1982 there has been a rapid increase in the production of Beans in Queensland, 1938 being the record. In 1932, 773 tons were marketed interstate; in 1938 this had increased to 2,066 tons. Agreements have been made by the C.O.D. with agents under which no agents canvassers visit Queensland districts between May 1 and October 31. The 1938 season was satisfactory. One of the very important activities of the C.O.D. has been the operating of its own selling floors in various markets in Queensland and N.S.W.

[The foregoing is a short summary of the Queensland trade in the production and marketing of fruit and vegetables. Further information will be published in the monthly issues of the "Fruit World and Market Grower."]

WESTERN AUSTRALIA.

W ESTERN AUSTRALIA grows large quantities of fruits and vegetables of various kinds for consumption within the State, The overseas export trade in Apples, Pears and Grapes is considerable. However W.A. needs certain lines from the other States, and the following figures received from the Dept. of Agriculture set out the statistics up to June 30, 1938.

Importation of fresh fruit into W.A. from other States

for the year ended June 30, 1938;—

4,130
1,503
287
6,680
232
449
3,188
807
1,412
1,657

It is interesting to note that of the total importation of 6,680 cases of Oranges imported, 6,549 cases are brought by the Trans. train to Kalgoorlie. The total is not large when it is remembered that annually upwards of 300,000 cases are produced and consumed locally in Western Aust.

Imports from Abroad.

Importations of fruit from overseas mainly consisted of Bananas (4,383,300 lbs.), Nuts (128,838 lbs.), Coconuts (72,400 lbs.), and Pineapples (2,100 lbs.). The only other varieties recorded are Mangoes (1,100 lbs.), and Mangsteens (300 lbs.).

PRINCIPAL SOUTH AUSTRALIAN INTERSTATE IMPORTS.

ted.	ined.
asse asse	otal
a - Table Tuato a Traffic 見 日子 A	- 三五日
Apples—Bushels 5,277	2 5,349
Bananas—Bushels 150,3231 — 846	3 151,169
Citrus-	
Grapefruit—Bushels 569 375 -	- 569
Lemons Bushels 22 — 3	3 25
Oranges—Bushels	7 2,903 -
Passionfruit—Bushels . 2,787	2,7371
Peaches—Bushels 347 347 34	181
Pears-Bushels 111	- 111
Pineapples—Bushels 14,858 🕳 - 39	14,897 -

Tomatoes—Bushels	1,0612		10	1,071
Coconuts-Bags	109	-	_	109
Peanuts-Bags	7,214	104		7,214
Peanuts Kernels-Bags	1,618	_		1,618
Beans—Bushels	2,571		31	2,602
Carrots—Bags	429			429
Cucumbers—Bushels	1,776	_		1,776
Mixed Vegetables—Bags	163		_	163
Onions-Bags	3,078			3,078
Potatoes-Bags	99,860	_	16	99,876
Potatoes, Sweet-Bush.	1591		_	159
Swedes-Bags	4,380		_	4,380
Bulbs-Packages	730	3		730
Plants, Orntl.—Packages	961	3	3	964
Seeds-Packages	444			444
Trees, Fruit-Packages	176	31	;	176
Wine CasksNo	35,073	599	1	35,073
			·	

S.A. FRUITGROWERS' AND MARKET GARDENERS' ASSOCIAITION.

1,649 1,081 337,8032

Fine Record in Organised Marketing by Co-operative Body.

The South Australian Fruitgrowers' and Market Gardeners' Association Incorp., has been in existence for 36 years, an achievement perhaps unique for its particular sphere in Australia.

A LTHOUGH a gardeners' organisation had been in existence previously, the present Association was constituted in 1902, but after years of fluctuating fortunes it became almost non-existent in 1927, when the late Mr. W. J. Kimber was appointed Secretary.

The efforts of the late Secretary were largely responsible for the rapid growth of the organisation, which in ten years increased its membership from 70 to over 700 members. During those years many changes took place, and the need for co-operation was more and more acknowledged by growers.

With the growth of the Association and, incidentally, greater production, the problem of distribution confronted the association for the local market was unable to dispose of the increasing production. Other markets had to be found, and it was felt that growers should consign their own produce through the machinery of their Association.

It was then that the Association was divided into sections, with a committee of growers governing their own affairs, and controlling the export of their particular class of produce under the guidance of a Central Executive.

Tomato Section.

This section has been in existence for over ten years, and has perhaps the largest membership of all sections. To-day over 90 per cent. of glasshouse Tomato growers in S.A. are members of the Association, and export their Tomatoes through Association channels.

In recent years, although ever increasing glass has been erected, supplies have decreased owing to disease and other problems. Increasing production in other States has provided keen competition on the main market for S.A. Tomatoes, viz., Melbourne, and this, too, has had some bearing on the decline of export figures. The section is well organised, and through the medium of an organiser, packing and grading is maintained at a high standard.

The season now in progress, despite early forecasts to the contrary, is yielding a better crop than the preceding one, and prices generally have been fairly satisfactory.

The section feel, however, that if the Tomato industry in S.A. is to regain its strength of past years, the erection of further glass must be limited, and they strongly discourage any increase on the present glass.

The Committee of the section is as follows:—Mr. C. Stanford (chairman), Messrs. A. F. Huelin, H. R. Waymouth, J. G. Potts, A. Elliott, S. H. Davis, W. A. Hersey, Jr., A. B. Fuss, K. Cooke, M. Georgeff, W. Parsons, and R. B. Stanford Organiser, Mr. R. Warren.

Celery Section.

The Celery Section, like the Tomato Section, is highly organised, and has just completed its record export season.

The increased planting, however, may here again, lead to over production, and growers are warned against this eventuality.

South Australian Celery is famous throughout Australia for its excellent quality, and is unsurpassed anywhere.

The section each year pays out large amounts in advertising its product, and its enterprise in this direction is rewarded.

To meet the growing production, the committee have from time to time exploited new markets, Brisbane and Newcastle being two of the most recent ones, and both have proved beneficial to the growers. A member of the Association on a trip around Australia recently stated that S.A. Celery was obtainable in every town of importance in the Commonwealth.

The Committee guiding the affairs during the 1938 season was:—Mr. G. Strange (chairman), Messrs. M. Packer, W. Packer, A. J. Hollister, V. W. C. Schulze, C. Ridley, A. R. Martin, A. Floyd, H. Collins, N. T. Hobbs; orangiser, Mr. R. G. Bartram.

Cherry Section.

This section, like the other exporting sections, is also keenly organised, and has the support of practically the whole of the Cherry growers in South Australia.

Cherry production can only be successful in selected areas, and in South Australia is confined to parts of the Adelaide Hills, principally at Nortons Summit, Cherryville, Basket Range and surrounding districts. This locality is delightful, and during the Cherry season is one of South Australia's show places.

South Australian Cherries, like its Celery, are superb in size and quality, and are famous throughout Australia, the main markets, however, being Victoria and W.A.

During recent years the section has been successful in placing large quantities of light varieties with factories at satisfactory prices. This service has been greatly appreciated by growers.

The 1938 season now in progress is considerably lighter as regards quantities than that of 1937. This fact, however, has been offset by favorable weather conditions, and as a result the export quantity this season will not be as low as first anticipated.

low as first anticipated.

Mr. W. J. Bishop is chairman of the section, and the Committee consists of Messrs. R. A. Cramond, L. Bungay, J. D. Yeatman, E. Bonython, E. Collins, W. Mc-Kerlie, Hon. T. Playford, E. Walker, L. Trevorden, E. Giles, R. Hunter, K. Caldicott and Ray Taylor.

Glies, R. Hunter, K. Caldicott and Ray Taylor.

Last year the Cherry Section paid more attention to
the export of Gooseberries, and 1,054 half cases were
consigned to Victoria and 522 to Western Australia.

Soft Fruit Section.

The Soft Fruits Section has not in the past exported their members' produce, but the need for other markets is now being felt, and the committee are at present considering this aspect.

The section, however, has done much for its members, locally, and its endeavors to stabilise the price on the local markets has met with success.

The Association, on different occasions, has helped this section over glutted seasons by means of a Fruit Pool to

pulp Apricots, Plums, etc.

The Committee appointed for the present season is Mr. F. Hughes (chairman), Messrs. H. N. Western, L. Western, N. T. Hobbs, L. G Pethick, L. J. Wicks, F. A. Wicks, J. Turner, A. Elliott, H. B. Robson, F. Warner, W. C. Verrall, G. T. Pitt, and W. Halstead.

Apple and Pear Section.

The Apple and Pear Section has not in the past engaged in overseas export of Apples, but, influenced by the success of the other exporting sections, and alive to possibilities of grower controlled export, have arrangements well in hand for Apple export to the United Kingdom in 1939.

A representative has been appointed in London to watch

growers' interests on the other side.

Like the Tomato and Soft Fruits Sections, the Apple Section has rendered growers on the local markets services by the means of price fixing. This service has proved very successful, and has been appreciated by

The Apple and Pear Committee consists of Mr. M. J. Vickers (chairman), Messrs. J. B. Randell, A. O. Peterson, W. J. Bishop, F. B. James, A. D. Chapman, H. N. Wicks, S. James, G. Clifton, W. McLaren, R. Hannaford, F. F. Redden and Hon. T. Playford.

Citrus Section.

The affairs of citrus growers are controlled by two branches of the Association, viz., Torrens Valley Citrus Growers' Association and Salisbury Citrus Growers' As-

These two bodies have successfully exported large quantities to overseas markets, and at times exploited interstate markets.

Mr. F. A. Wicks is Secretary of the Torrens Valley Association and Mr. E. R. Moss, of the Salisbury body.

The Association has also helped citrus growers locally

by its efforts to stabilise local prices.

Marion Branch: The Marion Branch controls the destinies of the Almond growers, and has rendered yeoman service in this direction. Mr. J. R. Duncan is chairman of the branch and Mr. A. C. Gibson, secretary.

The berry, vegetable and potato growers each have their own section, but are concerned mostly with local matters, although the Association has been able at times to place large consignments of vegetables on interstate markets.

Fruitgrowers' and Market Gardeners' Society Ltd.

A few years ago, when extensive organisation was taking place, the idea of a trading society where growers could secure their gardening requirements became a reality when the Fruitgrowers' and Market Gardeners' Society Ltd. was established.

Prices are purely competitive, and after allowing a small percentage for overhead expenses all profits that may accrue are handed back to members by the way of a rebate. Definite concession in insurance have provided

distinct advantages to shareholders.

Mr. W. J. Bishop is chairman of the Committee of Management, consisting of Messrs. L. J. Wicks, N. T. Hobbs, A. Day, A. Elliott, A. R. Martin and J. Turner. Mr. W. H, Field is manager and Mr. A. Stuart, secretary accountant.

Market Representatives: Service rendered by interstate market representatives has played a big part in the successful operation of the Association, and great praise must be given for the efforts of Messrs. C. W. McRostie (Melbourne), D. G. Wills (Sydney), and H. Hansford Reeve (Brisbane).

It speaks volumes for the loyalty of its members when an organisation has subsisted for 36 years, and is still forging ahead. Too much praise, however, cannot be given to those men who, in a voluntary capacity, have given up their time and energy to further the interests of their fellow members, by working on the various com-

The President of the Association is Mr. W. J. Bishop, and Mr. A. Stuart as Secretary. The Executive Committee comprise:—Messrs. L. J. Wicks, N. T. Hobbs, G. Jennings, C. H. Ragless, W. H. Ind, R. Hunter, J. B. Randell, C. W. Giles, J. Turner, F. C. Stamford, A. O. Petersen.

South Australian Interstate Exports.

		•	
	Fresh Fruit.	Nuts. Vegetables.	Seeds.
1936-37.	Pkges.	Pkges. Pkges.	Pkges.
N.S.W	. 24,042	3,811 57,783	-
Tasmania	3,281	20 321	
Victoria	300,370	1,159 97,440	7,818
W. Aust.	15,6561	1,671 4,786	
Totals	. 343,349½	6,661 160,330	7,818
1937-38			
N.S.W	44,551	3,059 90,669	
Tasmania	4,766	27 262	یک ۱۰۰۰
Victoria ,	. 347,594	466 124,713	9,122
W. Aust. :	. 15,550	905 6,920	. i . i <u></u>
Totals .	. 412,461	4,457 222,564	9,122

Figures supplied by Queensland Dept. of Agriculture could not be separated.

MENDING LEAKING TANKS.

Galvanised iron tanks that are slightly corroded and leaking can be renewed by rendering the inside and bottom with two coats of 1:2 cement-sand mortar reinforced with wire netting to prevent cracking.

Empty the tank and clean thoroughly to remove all rust and dirt. Spread 12 inch or finer wire netting over the bottom, bending it six inches up the sides all round. Punch small holes, about six inches apart, in the grooves of the corrugated sides. Press a length of wire netting up against the inside of the tank and hold in position by passing fine tie wire through the holes in the iron. When the netting is firmly tied, cement the bottom with

2 to 21 cubic feet of clean fine sand and to 1 paper bag of cement, using just enough water to make a stiff working batch. The quantity for the bottom must be enough to give at least 1 inch thickness covering the wire netting.

When the bottom has set hard, and not sooner than two days, get into the tank again and plaster the sides. After filling the grooves of the corrugated iron it is usually necessary to put on at least 1 inch of mortar to cover the netting properly to preserve it from rusting. After another two days, go around the outside of the tank and cut away all projecting pieces of tie wire with a sharp pair of nippers, then give the iron a coat of paint made of boiled oil and Portland cement.

Fruitgrowers' Associations Throughout Australia

THE AUSTRALIAN APPLE AND PEAR EXPORT COUNCIL.

President, J. B. Mills, 528 Collinsstreet, Melbourne; Vice-President, D. E. Ryan, Franklin, Tasmania; Deputy Vice-President, F. Moore, Blackburn, Victoria; Secretary, R. E. Boardman, A.F.I.A., F.A.I.S., 528 Collinsstreet. Melbourne

Affiliated Associations—

Tasmania: Tas. State Fruit Board, Tas. Fruit Shippers' Committee.

N. Tas. Fruit Shippers' Committee.

Victoria: Victorian Fruit Marketing Association.

S. Australia: S. Aust. Fruit Mar-

keting Association.
W. Australia: W.A. Fruitgrowers' Association, W.A. Fruit Shippers' Committee.

New South Wales: N.S.W. Apple and Pear Export Association.

Queensland: Committee of Direction of Fruit Marketing.

Australian Dried Fruits Association: Sec., W. N. Sumner, Cornhill Chambers, Collins-street, Melbourne:

Dried Fruits Export Control Board: Sec., R. A. Marx, 100 Queen-street,

Canned Fruit Export Control Board: Sec., W. J. Adams, A.M.P. Buildings, 419 Collins-street, Melbourne.

Australian Canning Fruitgrowers Association: Sec., W. J. Young, Ard-

Fruit Industry Sugar Concession Committee: Sec., W. J. Adams, 419 Collins-street, Melbourne.

Federal Citrus Council: Sec., A. W. Schwennesen, G. Kitchin-Kerr, Market Manager, Temple Court, Collins-st., Melbourne.

NEW SOUTH WALES.

Fruitgrowers' Federation of N.S.W.: Secretary, E. E. Herrod, 11 Blighstreet, Sydney.

List of Affiliated Organisations, Together with Names and Addresses of Secretaries.

Arcadia: E. L. Alexander, Arcadia, via Galston.

Annangrove: A. C. Birch, Annan-

grove, via Rouse Hill. Arding: J. H. Yeomans, Arding, via Uralla.

Armidale and Dist.: W. Gantle "Dangarsleigh," Armidale.

Aylmerton (A.B.C.): J. A. Rut-

Banana Growers' Fed. Co-op. Ltd.: A. Buckley, Box 31, Murwillumbah.

Bathurst: E. Ray, Caves, Roadside Mail, Bathurst.

Batlow: Agric. Bureau, P. E. Cook,

Batlow Packing House and Cool Stores Rural Co-op. Soc. Ltd., Batlow. Berrima and Dist.: H. Richardson, Moss Vale.

Binalong: W. Arthur, Binalong. Brady's Gully: J. D. Kirkness,

Brady's Gully, via Gosford.
Bulga: L. C. Dodds, "Glenanne," Bulga.

Bungunyah and Koraleigh: O. M. Ward, Koraleigh P.O. (N.S.W.), via Nyah (Victoria).

Buninyong: C. J. Roweliff, Old Dubbo-road, Dubbo.

Camden: G. V. Sidman, Camden. Cattai Dist.: N. G. Baur, Box 1,

Central Nth Coast Tomato, Fruit and Veg. Co-op. Soc. Ltd.: A. G. Henderson, Valla.

Cessnock and Dist.: R. McNamara, Mt View, via Cessnock.

Coff's Harbor: V. E. Allen, "Korora," Coff's Harbor.

Coomealla: C. Aubrey Calf, Dare-

Cordeaux: F. A. March, Cordeaux River, Kambla Heights.

Crookwell: A. G. McDonald, Crookwell.

Curlwaa: P. L. Taylor, Curlwaa. Dooralong: S. C. Richards, Doora-

long, via Wyong.
Dural: M. Fisher, "San Remo," Dural.

East Kurrajong: E. Case, Kurra-

Elderslie: A. F. Pankhurst, Elderslie, Branxton.

Exeter: P. C. Allen, Sutton Forrest. Fairfield and Dist.: G. Lehmann, Water-street, Smithfield.

Freeman's Reach-Glossodia: Krahe, Wilberforce.

Glenfield: A. J. Blinman, Glenfield. Glenorie: F. A. Nicolson, "Pineville," Glenorie.

Glossodia: R. J. Jenkins, Glossodia, via Windsor.

Gosford Co-op. Citrus Packing House Ltd.: Box 10, Gosford.

Gosford Bulk Loading Rural Co-on. Society Ltd.: L. S. Dubois, Railway Goods Yard, Gosford.

Goulburn: H. Broadhead, Goulburn. Grafton Dist.: B. C. Eggins, "Melrose," Kent-street, Grafton.

Gressford: G. N. Doyle, East Gos-

Griffith Prod. Coop. Co. Ltd.: Box 476, Griffith.

Grose Vale: J. F. Power, Grose Vale.

Grose Wold: W. J. Nutman, Grose Wold.

Gunning; G. E. Ardill, Gunning. Holgate: R. Gale, Holgate, via Gos-

Hawkesbury and Nepean Fed. of

Progress Assns.: H. C. Matheson, "Glenara," Grose Wold. Hunter River and Dist.: L. S. Sco-

bie, Lorn, West Maitland. Invereil: W. Ayland, Box 218, In-

Kellyville: A. Bathgate, Kellyville. Kenthurst: W. E. Campbell, Kent-

Kentucky Agric. Bureau, Co-op. Packing House Ltd., D. J. Toomey,

Kentucky. Kentucky Rural Co-op. Soc. Ltd.:

Kentucky South. Kentucky F.G.A.: J. Ballantyne, Hillcrest, Kentucky South.

Kincumber and Avoca: D. F. Gray,

Avoca Beach, via Gosford. Kingsvale Rural Co-op. Soc. Ltd.: Box 5, Young. Kootingal: Mrs. B. M. Sage, Koot-

ingal.

Kulnura: A. A. Anderson, Kulnura, via Gosford. Kurrajong: A. F. Vincent, Kurra-

Leeton Fruitgrowers' Co-op. Soc.

Ltd., Box 244, P.O., Leeton.

Lavington: W. Fisher, Lavington. Lemongrowers' Association: R. A. Findlay, Somersby, via Gosford.

Liverpool and Dist.: A. L. Marshall, Central-avenue, Chipping Norton.

Lower Portland: H. Lowe, Lower Portland.

Maidens Brush: R. More, Maidens Brush, via Gosford.

Mangrove Mt.: A. E. Lillicrap, Mangrove Mt., via Gosford.

Maraylya and Dist.: A. Wimble, Maraylya.

March Agric. Bureau: N. Griffith, "Melyra," March, via Orange.

March Fruit Growers' Association: E. Griffith, March, via Orange.

Mardi: L. T. Bray, Mardi, via Wyong.

Maroota: G. J. Robinson, Maroota, via Windsor.

Mainuru Rural Co-op. Soc. Ltd.: M. W. Johns, Box 30, P.O., Young.

Millthorpe: W. W. Moad, "Merlyn,"

Mitchell's Flat: G. Ernst, Mitchell's Flat, via Singleton.

FRUIT WORLD ANNUAL.

Mt. Hunter: J. Childs, Mt. Hunter, via Camden.

Morisset and District: G. W. Brown,

"Wonga Hill," Martinsville.

Molong: E. L. M. Parslow, Box 35,

Mt. Wilson and Mt. Irvine: G. Val-der (Jnr.), "Noonoo," Mt. Wilson. Mudgee: E. W. Roth, "Putta

Bucca," Mudgee.
Narara: A. M. Midson, Deanestreet, Narara.

Newcastle Dist.: A. Barrett, Cardiff.

Niagara Park: T. H. B. Cassell, Niagara Park, via Gosford.

Nepean Dist. F.G.A.: M. G. Walker, Emu Plains.

Nepean Dist. A. H and I Society: C. H. Fulton, Box 17, Penrith.

Nullamanna: R. E. Gearing, Nullamanna.

North Richmond: G. L. Davies, North Richmond.

Oakville: J. M. Hession, via River-

Oakdale: H. S. Kingsell, Oakdale. Orange Prod. Rural Co-op. Soc. Ltd., Box 171, Orange.

Orangeville: G. N. Mackie, Orangeville, via Camden.

Orchard Hills and Dist.: K. Basedow, Orchard Hills.

Ourimbah Bulk Loading Rural Coop. Soc. Ltd.: H. Freeburn, Ourimbah. Parkesbourne: G. Brown, Parkes-

Pennant Hills: H. B. Chrisholm, New Line-road, West Pennant Hills.

Peats Ridge: A. J. Love, Peats Ridge, via Gosford.

Penrose Agric. Bureau: C. Hebblewhite, Penrose.

Penrose Fruitgrowers' Rural Co-op. Soc. Ltd.: J. E. Tickner, Penrose.

Pitt Town: A. B. Sanday, Pitt Town, via Windsor.

Producers' Co-op. Distrib. Soc. Ltd. (Fruit Section): Box 86c, P.O., Haymarket.

Running Stream: E. Bartlett, "Melrose," Capertee.

Saratoga: J. J. Bourke, Saratoga. Sackville North: C. Noble, Sackville North, via Windsor.

Shipley: R. S. Longton, Shipley, via Blackheath.

Singleton: A. J. Taylor, Warkworth, via Singleton.

Somersby: D. K. Hutchinson, Somersby, via Gosford.

St. Ives: G. A. Hunt, Kenthurststreet, St. Ives.

Tahmoor: A. G. Miller, Tahmoor. Tallong: F. A. Morris, Tallong. Tenterfield Fruitgrowers' Association: H. E. Pommerlad, Box 54, P.O., Tenterfield.

Terrigal: T. W. Pedley-Smith, "Eledo," Terrigal.

Tuggerah: F. C. Fripp, Tuggerah. Tumbi Umbi and Dist.: A. L. Bohringer, Tumbi Umbi, via Wyong.

Upper Colo: J. E. Forgham, Upper

Uralla: W. D. Goode, Spring Creek, Arding, via Uralla.

Warkworth: J. Greenhalgh, Warkworth, via Singleton.

Warner's Bay Dist .: A. J. Weikle-

john, Speer's Point, via Boolarco. Waterview Rural Co-op. Soc. Ltd., c/o T. Steele, Box 54, Young. Wedderburn: R. F. Arundel.

Wedderburn, via Campbletown.

West Gosford: A. E. Walker, Manns-road, Gosford.

Wilberforce: P. Bushell, Wilber-

Wingello: C. Nurse, Fruit Section, Wingello.

Wirrimah Rural Co-op. Soc. Ltd., Wirrimbah, via Bendick Murrell.

Woonona and Dist.: F. Turnbull, York-road, Bellambi.

Wiseman's Ferry and Dist: C. Riley, "Wanatta," Wiseman's Ferry.

Wyoming: R. W. Haynes, "Lynhales," Narara.

Wyong Co-op, Citrus Packing House Ltd.; Wyong.

Yarramundi Falls: A. P. Luscombe, Agnes Banks

Yass: Yass.

Yarramalong: A. G. Waters, Yarra-

Yenda Producers' Co-op. Soc. Ltd., Box 19, Yenda.

Young Cool Stores Rural Co-op. Soc. Ltd., Box 5, Young.

Young Fruitgrowers' Co-up. Soc. Ltd., Box 5. Young.

Young Dist. Producers' Co-op. Assn. Ltd., Box 5, Young.

N.S.W. Citrus Growers' Defence Assn., Sec., H. Gordon Bennett, 12 O'Connell-street, Sydney.

FRUITGROWERS' ASSOCIATIONS IN VICTORIA.

Bairnsdale Fruitgrowers' Association (R. C. Matthews, Bairnsdale).

Bunyip, Garfield and Tynong Fruitgrowers' Association, Bunyip.

Burwood East Fruitgrowers' Association (G. C. Karnaghan, Blackburn). Croydon Horticultural Association (Pitman, Croydon).

Doncaster Fruitgrowers' Association (G. S. Grover, Doncaster).

Diamond Creek Fruitgrowers' Association (R. M. Finlay, Diamond

Drouin and Warragul Fruitgrowers' Association (C. P. Nobelius, Warra-

Dunolly and District Fruitgrowers'

Association, Betley.
Gippsland Fruit Marketing Association (W. H. Carne, Pakenham Up-

per). Gorae Fruitgrowers' Association

Gorae, via Portland. Harcourt Fruitgrowers' Progress Association Ltd. (C. Hull, Harcourt). Harcourt Fruit Supply Company

(C. Wilson, Harcourt). Northern Victoria Fruitgrowers' Association (S. P. Cornish, Ardmona).

Orchardists' and Fruit Cool Stores' Association of Victoria (H. J. Noonan, Mitcham-road, Donvale). Panton Hill Fruitgrowers' Associa-

tion, Panton Hill.

Quantong Fruitgrowers' Association (C. H. Jost, Quantong).

Somerville Fruitgrowers' Association (A. F. Telford, Somerville).

Southern Fruitgrowers' Association, (J. W. Aspinall, Box Hill). Shepparton Irrigators' Association,

Shepparton.

Silvan Fruitgrowers' Association, Silvan.

Southern Victoria Pear Packing Co., F. Moore, Blackburn.

Strathfieldsave Fruitgrowers' Association, Strathfieldsaye.

Tyabb: Fruitgrowers' Association,

United Berry Growers' Association, Wandin.

Victorian Central Citrus Association, A. W. Schwennesen, manager, 360 Collins-street, Melbourne. Victorian Fruit Marketing Associa-

tion (R. E. Boardman, A.F.I.A., 528 Collins-street, Melbourne).

Wandin ` District Fruitgrowers' Association, Wandin North.

Northern Victoria.

Northern Victoria Fruitgrowers' Association: Secretary, S. P. Cornish, Ardmona.

Affiliated Associations and Secretaries.

Ardmona: S. P. Cornish, Ardmona. Bamawm Dist: P. Rochester.

G. ٠É. Kyabram: Markham. Kyabram,

Lancaster: T. Hughes, Lancaster. Merrigum: S. Youlden, Merrigum. Shepparton: V. E. Mills, Sheppar-

ton East. Tatura: J. G. S. Rose, Tatura. Toolamba: J. Agnew, Mooroopna.

Tongala: D. E. Barry Wood, Tongala East.

VICTORIA

Cool Stores Associations.

The Orchardists' and Fruit Cool Stores' Association of Victoria. - Secretary, H. J. Noonan, Donvale, Affiliated stores and secretaries, as

Interstate-

Batlow, N.S.W.: H. V. Smith, Batlow, N.S.W

Bender & Co., 100 Elizabeth-street, Launceston, Tas.

Victoria-

Ardmona Fruit Products, Mooroonna.

Blackburn: A. J. Noonan, Black-

Bunyip: L. Thomas, Bunyip. Burwood East: G. C. Karnaghan, Blackburn.

Croydon: Robt. Langley, Kilsyth. Diamond Creek: R. M. Finlay, Dia-

Doncaster East: W. Johnston, Cottage-street, Blackburn.

Doncaster West: A. T. Tully, Main-

road, Doncaster. Harcourt: H. M. McLean, Harcourt. Hastings and District: G. H. Sprague, Hastings.

Kyabram Co-op. Fruit Preserving Co.: C. P. Crichton, Kyabram.

Mount Waverley: David Peck, Tally

Orchardists: G. S. Grover, Doncas-

Pakenham: H. Hamilton, 271 Collins-street, Melbourne. Portland: W. Hedditch, Gorae, via

Portland.

Ringwood: J. G. Aird, Ringwood. Shepparton Fruit Preserving Co.:

A. W. Fairley, Shepparton.
Somerville: T. E. Butler, 486
Collins-street, Melbourne.

Tyabb and District: Miss H. A. Foristal, Tyabb.

Wantirna: F. J. Byrne, Bayswater.

Private Stores-

Box Hill Ice and Cold Storage Pty. Ltd.: C. G. Gill, Springfield-road, Blackburn.

J. Brunning & Sons, Somerville. F. W. Cameron, Main-road, Doncaster.

Elinora Orchards: A. P. Stott, Wheelers Hill.

Graceburn Valley: A. E. Hocking, 31 Queen-street, Melbourne.

R. E. Haysey, Narre Warren North. Heatherlie: D. Lipscombe. Croy-

A. E. Ireland, Beverley-street, Doncaster.

W. Ireland, Gillies-street, Mitcham. V. Lawford, Springfield-road, Black-

Lechte Bros., Mt. Waverley.

S. J. Perry & Co., 364 Little Collinsstreet, Melbourne.

Two Bays Nurseries Co., Mooroo-

W. C. Thomas & Sons Pty. Ltd., 57 William-street, Melbourne.

Tacoma: F. Petty, Park-road, Mit-

J. J. Tully, Victoria-street, Doncaster.

Herb. Petty: Main-road, Doncaster. F. C. Pyke, Heatherdale-road, Ringboow

VICTORIAN CENTRAL CITRUS ASSOCIATION PTY. LTD.

422 Collins-street, Melbourne; General Manager, A. W. Schwennesen. Branches and Secretaries.

Murrabit District Citrus Assn.: J. H. Morton, Gonn Crossing, via

Bamawm Citrus Assn. Ltd.: W. Chapman, Lockington.

Lake Kangaroo Packing Co. Pty. Ltd.: H. S. Argyle, Mystic Park.

Mildura & Districts V.C.C.A. Executive: A E. Cameron, Box 194, Red Cliffs

Mildura Citrus Assn.: H. Wormwell, 15th-street, Irymple.

Merbein Citrus Growers' Assn.: J. A. Rickard, Merbein.

Shepparton Irrigators' Assn.: V. S.

Mills, Shepparton. Wangaratta Citrus Assn.: J. P.

Larkings, Wangaratta. Nanneella Citrus Assn.: J. Logan,

Nanneella. Red Cliffs Citrus Assn.: R. D. Hollins, Red Cliffs.

Long Lake Citrus Assn.: C. V. Rees,

"Bloomfields," Lake Boga.
Curlwaa Co-op. Packing Society
Ltd.: L. R. Strother, Curlwaa, N.S.W. Cobram Fruit Packing Co. Pty.

Ltd.: L. F. Edwards, Cobram. Cain, W. N., Madowla Park, Picola. Rupert J. Watson, Perricoota, via

Moama, N.S.W P. Rossiter, Ngawe, Cobram.

SOUTH AUSTRALIA.

Murray Citrus Growers' Association.

The Murray Citrus Growers' Co-op. Association (Australia) Ltd., has its headquarters at 87 Brookman Building, Grenfell-street, Adelaide.

Central Executive, 1938. sident: Mr. A. P. Wishart, President:

(Berri). Members: Messrs. K. Dunstan and C. B. Williams (Waikerie); C. Plush and A. V. Mills (Berri); J. Price and H. C. Carne (Renmark); J. Swanbury (Moorook and Kingston); K. F. Dowding (Mypolonga); J. R. Jemison (Ramco); R. B. Sleth (Cadell); and H. R. Carter (Barmera).

Management Committee, 1938. Chairman: Mr. A. P. Wishart.

Members: Messrs. K. Dunstan, H. C. Carne, K. F. Dowding and C. B. Williams.

District Committee are established at Waikerie, Renmark, Berri, Mypolonga, Murray View, Moorook and Kingston, Ramco, Cadell and Barmera.

Market Representative in Great Britain: Mr. N. H. Underwood.

The Acting General Secretary is Mr. J. J. Medley.

WESTERN AUSTRALIA.

W.A. Fruitgrowers' Assn.: Joint Secretaries: H. W. Soothill, c/o Producers Markets Ltd., Perth, and B. Hickling, Mt. Barker.

W.A. Fruit Shippers Committee: Sec., C. H. Merry, Commercial Union

Chambers, Perth.

Affiliated Associations.

Albany: W. Gibb. Balingup: E. Cleveland.

Bridgetown: Doust, R. E. Boyup Brook: A. A. Penifold.

Central Darling Range: H. White-

side, Kalamunda. Capel: Turner, T. H.

Chittering District: O'Neill, C., Lower Chittering.

Donnybrook & Dist .: Moore, C. R. Brookhampton.

Denmark: Kingston, W. J.

Eastern Hills: A. S. Forsyth, Parkerville.

Harvey: Thew, J. Manjimup: R. Wheeler.

Mt. Barker: Hickling, B.

Northern District Council: Soot-hill, H. W., Box N1041, Perth. South Suburban: E. H. Brown, Box

41, Kelmscott.

Spearwood Fruitgrowers' & Market Gardeners' Assn.: Mr. Connolly, c/o R. Piercy, 57 Henderson-street, Fremantle.

TASMANIA.

State Fruit Board: A. J. Honey, Secretary, Bursary House, Hobart. Tel. Hobart 4857 (after hours 5677).

Small Fruits Advisory Committee, A. J. Honey, Sec., Bursary House, Hobart. Tel. 4857.

Fruitgrowers' Associations.

Port Huon Fruitgrowers' Co-operative Association Ltd.: General manager, J. P. Piggott, Davey-street, Hobart.

Bagdad Fruitgrowers' Co-operative Association: A. Gillow, Bagdad. Tamar Farmers and Fruitgrowers' Association: E. O. Lucas, Loira, West Tamar.

Tamar Valley Co-operative Company Ltd.: L. S. Taylor, Exeter.

Clarence Point Co-operative Orchard Company: Col. Oliver, Clarence Point.

Derwent Valley Fruitgrowers' Co-operative Co.: H. Morgan, New Norfolk.

Spreyton Fruitgrowers' Co-operative Company: A. Heath, Spreyton.

Tasmanian Farmers' Stockowners and Orchardists' Association: A. J. Honey, Bursary House, Hobart.

QUEENSLAND.

Committee of Direction of Fruit Marketing, Turbot-street, Brisbane, General Manager, B. Flewell-Smith; Sub-Manager, W. Ellison.

Affiliated registered Associations, with names and addresses of secretaries, are as follows:-

Branches of the Committee of Direction:

Melbourne Office: A. V. Wilson,

Box 648E, G.P.O., Melbourne. Sydney Office: B. Cox, Box 176, Haymarket P.O., Sydney.

Rockhampton Office: S. McCullough,

Box 313, P.O., Rockhampton. Bowen Office: R. A. Kelsey, Box

171, P.O., Bowen.

Townsville Office: K. Holland, Flinders-street. Townsville.

Amamoor: F. Townsend, Amamoor. Ambrose: R. Sinclair, Ambrose.

Aspley: W. F. King, Aspley. Austinville: V. Constant, Austinville, Mudgeeraba.

Bald Hills: W. E. Pearson, Bald

Brackenridge: J. F. Gaskell, Brackenridge, via Sandgate.

Brookfield: A. McKay, Brookfield. Byfield: J. Carroll, Byfield, via Yep-

Beerburrum: W. Dickerson, Beerburrum.

Birkdale: G. Randall (Chairman), Birkdale.

Buderim Mt.: R. L. Miller, Buderim

Burrum District Citrus Assoc.,

R. G. Reaney, Howard. Burrum L.P.A.: H. G. Rowston, Tor-

Beenleigh: W. F. Benfer, Hillside, via Beenleigh.

Bowen Dist .: G. Pott, Bowen. Bouldercombe: P. Dwyer, Bouldercombe, via Rockhampton.

Bowling Green: C. C. Neilson, Ara-

Baffle Creek: F. Kleinschmidt, Rosedale, N.C.L.

Caboolture: H. Goeldner, Cabool-

Cedar Creek: A. J. Marks, Close-

Coochin Creek: Mrs. A. L. Neilsen, Beerwah.

Cooloolabin: F. I. Peachey, Cooloolabin, via Yandina.

Cooran-Kin Kin: H. McDonald, Cooran.

Cooroy: A. Gordon, Cooroy, Currumbin: G. G. Greaves, Currum-

Dagun: P. Hicks, Dagun.

Dundowran: J. R. Stocks, Dundowran, Nikenbah.

Eight Mile Plains: E. J. Hampson, Eight Mile Plains.

Elimbah: E. Broughton, Elimbah. Eudlo: T. Ellis, Eudlo. Eumundi: A. W. Chapman, Eu-

Gympie: M. Buchanan, Goom-

boorian, via Gympie. North Deep Creek and Corella: J.

Colley, Tamaree. Mary's Creek: J. P. Jackson, Mary's

Creek, via Gympie. Cedar Pocket: F. W. Johns, Cedar

Pocket, via Gympie.

Chatsworth: T. P. Reynolds, Chatsworth, via Gympie. Glastonbury: B. C. Betts, Glaston-

bury, via Gympie. Goomboorian: W. Williams, Goom-

boorian, via Gympie.

Mooloo: W. Kirkwood, Junr., Mooloo, via Gympie.

Pie Creek; S. Adcock, Pie Creek, via Gympie.

Lower Goomboorian: G. E. Elliott, Lower Goomboorian, via Gympie. Upper Veteran: V. B. Gray, Upper

Veteran-road, Gympie. Scrubby Creek: J. P. Carey, Scrub-

by Creek, via Gympie. Gayndah and Dist .: J. C. Acworth,

Box 38, Gayndah. United Fruitgrowers Ltd.: A. Palk, Glasshouse Mts.

Horseshoe Bay F.G.A.: W. Townsend, Horseshoe Bay, via Townsville.

Howard: E. Richards, Heward. Jubilee Pocket: J. Campbell, Jubilee Pocket, Cannon Valley, Prosperpine.

Kallangur: J. A. Storey, Kallangur, near Petrie.

Kandanga: K. L. Viles, Kandanga. Kennedy-Meunga: J. C. Evans, Carruchan, Kennedy, N.Q.

Kiamba: P. T. Smith, Kiamba, via

Lagoon Pocket: J. Kernke, Lagoon Pocket.

Landsborough: F. J. Salmon, Landsborough (Conondale L.P.A., Ward

B).
Mackay Dist.: A. Gibson, Box 120,

Macleay Island .: W. J. Seymour, Macleay Island, via Redland Bay.

Meeandah: P. Adsett, P.O., Eagle

Moggill: R. Westaway, Junr., Mog-

Montville: J. F. S. Brown, Montville.

Mooloolah: Post to Secretary, Mooloolah

Morayfield: C. Scudamore, Morayfield.

Mt. Cotton: H. G. Holzapfel, Mt.

Mt. Mermaid: A. R. Vaisey, Upper Brookfield

Mt. Mee West: J. H. Jones, Mt. Mee West, via D'Aguilar.

Marmor: W. J. Sands, Marmor. Nambour: H. D. French, Nambour. Flaxton: J. R. Perkins, Flaxton, via Palmwoods.

Mapleton: A. A. Probert, Mapleton. Nerang: Post to Secretary, Nerang. North Arm: H. Mulcachy, North Arm.

Ormiston: T. R. S. Fox, Ormiston. Oxenford: A. K. G. Watt, Upper Coomera.

Ormeau Banana Growers' Assn.: L. Christoffel, Ormeau.

Palmwoods: J. Buddulph! Palmwoods.

Pomona: H. V. Wood, Pomona. Redland Bay: A. Prince, Redland

Rochedale: N. Stewart, Rochedale, Eight Mile Plains.

Russell Island: D. MacInnes, Russell Is., via Redland Bay. Sarina: H. Jacobsen, Sarina, N.Q.

South Tamborine: E. J. Jenyns, North Tamborine.

Sunnybank: H. Thomas, Sunny-

Tanby: R. F. Strange, Tanby.

Tamborine: H. Curtis, North Tamborine.

Tinana: E. Copley, Tinana, via Maryborough.

Takura: J. H. Mungomery, Takura. Upper Brookfield: J. Phillips, Upper Brookfield.

Upper Kedron: E. J. Pickering, Ferny Grove.

Upper Mudgeeraba: R. Rathbone, Upper Mudgeeraba.

Valdora: J. Leach, Valdora, via Yandina.

Victoria Point: E. Wilmott, Victoria Point.

Villeneuve: E. Axelsen, Villeneuve, Kilooy L.

Wamuran & Dist.: H. S. Franks. West Burleigh & Dist.: S. C. Ladds. Woodford: A. J. Crocker, Woodford. Woombye: E. E. McNall, Woombye. Yarwun-Targinnie: L. M. Ferguson. Yandina & Dist.: A. E. Haddrell, Yeppoon: A. E. Pascoe, Yeppoon. (All Deciduous Associations.) Stanthorpe L.P.A's.

Amiens: O. T. Jones, Amiens. Applethorpe: H. G. Ludlow, Glen-

Balandean: W. G. Newman. Bapaume: H. W. Bloxham. Broadwater: M. Schneider, Box 93, Cottonvale: A. E. Fordyce.

Dalveen: A. G. Whte, Dalveen. Eukey: L. G. Birch, Eukey. Glen Aplin: N. A. Collins. Wylie, Spring

Creek, Stanthorpe. Mt. Tully: V. C. Sheppard.

Pioneers: D. Ryan, Eukey, via Stanthorpe. Pozieres: A. E. Pierce, Pozieres. Severnlea: R. J. Bowden, Severnlea.

Stanthorpe: C. H. Lower, Box 121. The Summit: A. D. Philp. Thorndale: L. Smith, Thorndale, via

Thulimbah: L. C. Evans. Wyberba: J. R. Hickling, "Mon-rovia," Bald Mt., Wyberba, Southern Railway.

DRIED FRUIT PACKING SHEDS.

HE following is a list of Registered Packing Sheds operating under the Dried Fruits Board in the several States.

Victoria.

Ardmona Fruit Products Co-op. Ltd., Mooroopna. Aurora Packing Co. Pty. Ltd., Irymple No. 1 Shed. Aurora Packing Co. Pty. Ltd., Irymple No. 2 Shed Aurora Packing Co. Pty. Ltd., Merbein. Aurora Packing Co. Pty. Ltd., Redcliffs.

Australasian Jam Co. Pty. Ltd., 1 Garden-street, South

Bamawm Citrus Association Ltd., Lockington. Blake, W. A., Pty. Ltd., 252 City-road, South Melbourne,

Chequer, W., Quantong Co-operated D.F. Sales Pty. Ltd., Jeffcott-street, W. Melb. Desmond, J. J., Maccom Packing Shed, Fairy Dell, Roch-

Hungerford, E., & Sons, Piangil. Irymple Packing Pty. Ltd., Irymple and Merbein.

Jamieson, C., Shepparton. McAlpine, J. & K., Pty. Ltd., Nyah. Martin, C., Bruarong, via Yackandandah.

Mildura Co-op. Fruit Co. Ltd., Mildura and Merbein.

Mildura Co-op. Fruit Co. Ltd., Mildura, and Mersen. Mildura Co-op. Fruit Co. Ltd., Irymple. Nieman and Derrick, Murrawee, via Swan Hill Nyah Fruitgrowers' Co-op. Co. Ltd., Vinifera, Nyah. Nyah Fruitgrowers' Co-op. Co., Nyah West. Overall, H., Quantong, via Horsham.

Redcliffs Co-op. Packing Co. Ltd., Redcliffs. Shed No. 1

Sarnia Packing Pty Ltd., Mildura, Sterilizers Pty. Ltd., 194 Kerr-street, Fitzroy. Swallow & Ariell Ltd., Mildura.

Tandaco Packing Co., Nyah West.

Thwaites, J., Nyah. Woods, R. K., "Willowmere," Kyabram.

Woorinen Fruitgrowers' Co-op. Ltd., Woorinen South.

New South Wales.

Billing, U. S., Tapaulin. Brett Bros., Mt. Dispersion, via Euston. Coomealla Packers Pty. Ltd., Dareton. Ellis, T. N., 136 Chalmers-street, Sydney. Golden West Fruit Packing Co., 71 Sutton-street, Alex-

Granger, J. C., Kingsvale. Griffith Producers Co-operative Co., Griffith. Petrich, T. V., Yenda Packing Co., Yenda. Riverina Packing Co., Koohoora-street, Griffith. Johnson, W. H., & Co. Ltd., Bruce-street, Waterloo.

Mildura Co-op. Fruit Co. Ltd., Curlwaa and Pomona. Neville, Guy, Farm 54, Griffith. Producers' Packing Co., The, Valentine and Quay streets,

Sydney, and Leeton.

Riverina Welfare Farm, Yanco. Sainty, J., Herbert-street, Crows Nest.

Sharrock Bros., Goodnight.
Walster, W. D., Kemp-street, Junee.
Yenda Producers' Co-op. Society Ltd., Yenda.

Young District Producers' Co-op. Association Ltd., Young.

South Australia.

Angaston Fruit Growers' Co-op. Society Ltd., Angaston. Barmera Co-op. Packing Co. Ltd., Barmera.

Bell, R. G., McLaren Flat.

Berri Co-op. Packing Union Ltd., Berri. Cadell Fruit Packers Ltd., Cadell.

Chateau, Mildura, and Olivewood Pty. Ltd., Renmark. Cole & Woodham Ltd., Renmark.

Crowe & Newcombe, Renmark and Barmera. Crowe & Newcombe, Angaston and Port Adelaide. Howard, A. H., Langhornes Creek. Jones, W. O., Waikerie.

Kingston Co-op. Fruit Packing Union Ltd., Kingston-on-Murray.

McLaren Vale Packers Ltd., McLaren Vale. Mattiske, J. W., Executors of Estate, Angaston.

Media Irrigation Pty. Ltd., Loxton.

Monash Packing Co., Monash.

Moorook Co-operators Ltd., Moorook.

Mypolonga Co-op. Society Ltd., Mypolonga.

Odgers, J. J., Ramco.

Plush, S., Nuricotpa.

Price, J. H. M., Renmark.

Pyap Co-op. Society Ltd., Pyap.
Ramco Co-op. Ltd., Ramco.
Redman, J., & Sons, Coonawarra.
Renmark Fruit Growers' Co-op. Ltd., Renmark.

Robson, Jarvis & Co., Hectorville.
Saies, G. R., Renmark.
Sherwood Irrigation Co., Box 62, Loxton.

Stanley Dried Fruits Association Ltd., Clare.

Stevens, F. H., Renmark.

Thorn, A., Angaston.

Waikerie Co-op. Fruit Co. Ltd., Waikerie. Wood, G., Son & Co. Ltd., Port Adelaide. Wood, Son & Seary Ltd, Renmark and Berri.

West Australia.

Boxall, A. R., Millendon. Cox Bros., Athgarvon, Coolup. Harrison, E., Baskerville. St. Albans Packing Shed, Upper Swan.
Swan Settlers' Association Ltd., Herne Hill.
Watts, A. E., Greenmount Packing Shed, Greenmount. West Swan Dried Fruit Packing Co., West Swan.

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